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FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTE--ETC F/G 17/7
SRDS TECHNICAL PROGRAM DOCUMENT, FISCAL YEAR 1977 ENGINEERING A--ETC(U)
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U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

AD-A034 195

SRDS TECHNICAL PROGRAM DOCUMENT, FISCAL YEAR 1977
ENGINEERING AND DEVELOPMENT APPROVED PROGRAMS

FEDERAL AVIATION ADMINISTRATION, WASHINGTON, D.C.

OCTOBER 1976

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ADA 034195 **SRDS**

TECHNICAL PROGRAM DOCUMENT

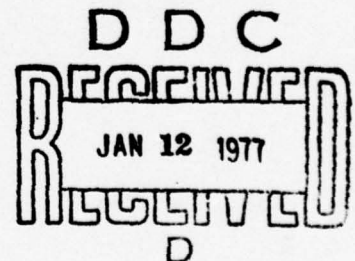


FISCAL YEAR 1977
ENGINEERING & DEVELOPMENT APPROVED PROGRAMS



OCTOBER 1976

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Systems Research & Development Service
Washington, D.C. 20590

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SPRINGFIELD, VA. 22161

11/12/76

TECHNICAL PROGRAM DIRECTIVE

No. ^{1/ 2/ 3/}77-01-01 through 21

SUBJECT: FY-77 SRDS Annual Technical Program

The enclosed FY-77 SRDS Annual Technical Program Document (TPD) establishes the Subprograms approved for implementation by the Director of SRDS. The implementation of these efforts is subject to the availability of resources.

This Annual Technical Program will be under continuing review and will be updated by means of Technical Program Directives as technical and other requirements dictate. Resumes in this Technical Program Document are structured according to the FAA Engineering and Development Programs 01 through 21.

120 / Sh. ftd
DAVID J. SHEPTEL
Director, Systems Research
and Development Service, ARD-1

-
- 1/ Fiscal Year
- 2/ Sequence of Technical Program Directive Issuance, coded and controlled by ARD-50/54.
- 3/ FAA ED Programs (per FAA-ED-00-C as amended).

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.																							
4. Title and Subtitle SRDS TECHNICAL PROGRAM DOCUMENT, Fiscal Year 1977 Engineering and Development Approved Programs		5. Report Date October 1, 1976	6. Performing Organization Code SRDS																						
		8. Performing Organization Report No.																							
		10. Work Unit No. (TRAIS)																							
7. Author(s)		11. Contract or Grant No. ARD-50																							
9. Performing Organization Name and Address U.S. DEPARTMENT OF TRANSPORTATION Federal Aviation Administration Systems Research and Development Service Washington, D. C. 20590		13. Type of Report and Period Covered Technical Program Document FY-77																							
12. Sponsoring Agency Name and Address U.S. DEPARTMENT OF TRANSPORTATION Federal Aviation Administration Systems Research and Development Service Washington, D. C. 20590		14. Sponsoring Agency Code																							
15. Supplementary Notes																									
<p>16. Abstract</p> <p>This Technical Program Document (TPD) contains Research and Technology Resumes which reflect Systems Research and Development Service, Federal Aviation Administration, approved subprograms. These resumes identify the technical objective, approach, milestones scheduled for accomplishment, accomplishments, requirements, etc.</p> <p>The TPD is structured according to the following 21 Engineering and Development Programs:</p> <table border="0"> <tr> <td>01 System</td> <td>11 ATC Systems Command Center Automation</td> </tr> <tr> <td>02 Radar</td> <td>12 Enroute Control</td> </tr> <tr> <td>03 Beacon</td> <td>13 Flight Service Stations</td> </tr> <tr> <td>04 Navigation</td> <td>14 Terminal/Tower Control</td> </tr> <tr> <td>05 Airborne Separation Assurance</td> <td>15 Weather</td> </tr> <tr> <td>06 Communications</td> <td>16 Technology*</td> </tr> <tr> <td>07 Approach and Landing Systems</td> <td>17 Satellites</td> </tr> <tr> <td>08 Airport/Airside</td> <td>18 Aircraft Safety</td> </tr> <tr> <td>09 Airport/Landside*</td> <td>19 Aviation Medicine**</td> </tr> <tr> <td>10 Oceanic</td> <td>20 Environment</td> </tr> <tr> <td></td> <td>21 Support</td> </tr> </table> <p>*Transferred to OSEM **Not included</p>				01 System	11 ATC Systems Command Center Automation	02 Radar	12 Enroute Control	03 Beacon	13 Flight Service Stations	04 Navigation	14 Terminal/Tower Control	05 Airborne Separation Assurance	15 Weather	06 Communications	16 Technology*	07 Approach and Landing Systems	17 Satellites	08 Airport/Airside	18 Aircraft Safety	09 Airport/Landside*	19 Aviation Medicine**	10 Oceanic	20 Environment		21 Support
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The report

FOREWORD

This FY-77 Technical Program Document (TPD) contains Research and Technology Resumes which reflect Systems Research and Development Service, Federal Aviation Administration, approved subprograms. These resumes identify the technical objective, approach, milestones scheduled for accomplishment, end-item products, and FY-76 accomplishments, and source of requirements.

The TPD is structured according to the following 21 Engineering and Development Programs:

- | | |
|-------------------------|-------------------------------|
| 01 System | 11 ATC Systems Command Center |
| 02 Radar | Automation |
| 03 Beacon | 12 Enroute Control |
| 04 Navigation | 13 Flight Service Stations |
| 05 Airborne Separation | 14 Terminal/Tower Control |
| Assurance | 15 Weather |
| 06 Communications | 16 Technology* |
| 07 Approach and Landing | 17 Satellites |
| Systems | 18 Aircraft Safety |
| 08 Airport/Airside | 19 Aviation Medicine** |
| 09 Airport/Landside* | 20 Environment |
| 10 Oceanic | 21 Support |

The fourth Arabic number in the Current Number/Code in block 10a of the Resume (i.e., 013-150) identifies the responsible lead division in SRDS, i.e.,

- | | | |
|-----|---------|---------------------------------------|
| 1 = | ARD-100 | Air Traffic Control Systems Division |
| 2 = | ARD-200 | Communications Division |
| 3 = | ARD-300 | Navigation Division |
| 4 = | ARD-400 | Airport Division |
| 5 = | ARD-500 | Aircraft and Noise Abatement Division |
| 6 = | ARD-60 | Spectrum Analysis Staff |
| 7 = | ARD-700 | Microwave Landing System Division |

Comments and recommendations concerning this TPD may be directed to the Chief, Program Management Staff, ARD-50.

* Transferred to OSEM

** Not included

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012-153	IPC/ATC System Interface
013-150	In-Service ATC Simulations
013-151	Concepts Affecting Separation Standards
013-152	In-Service ATC Simulations
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022-241	Improved Radar Subsystems
022-042	Hazardous Weather Detection
022-243	ARTS III/ASR Interface
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03	BEACON
031-241	ATCRBS Sustaining Engineering
032-241	ATCRBS Monitoring & Policing
033-241	ATCRBS Transmitter Site Equipment
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Aircraft Propulsion Systems Air Pollution
Source Noise Reduction
Operational Noise Reduction
Noise Evaluation and Response
Sonic Boom Research
Noise Emissions

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SUPPORT

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Radar Facilities Spectrum Planning
Communications/Navigation Spectrum Planning
Reliability Support Activities
Electromagnetic Radiation Measurement
ATCS Selection and Performance Measurement
FAA Academy ATCS Training
ATC Facility ATCS Training
Upgraded ATC System Training
Productivity in Advance ATC Automation
National Flight Data Center Instrument
Approach Procedure Automation

01 SYSTEM

RESEARCH AND TECHNOLOGY RESUME		NA	2. GOVT ACCESSION	NA	3. AGENCY ACCESSION	NA	REPORTS IDENT. SYMB.	RD 1750-1
4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGRADING	8. RELEASE LIMITATION	9. LEVEL OF RESUME			
10/1/76	A	U	NA	NL	Subprogram			
10a. CURRENT NUMBER/CODE			10b. PRIOR NUMBER/CODE					
I 012-151			None					
11. TITLE:								
Terminal Interface (WVAS, TAGS, TIPS, ARTS)								
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY			
NA			10/76					
16. PROCURE. METHOD	17. CONTRACT/GRANT	18. DATE						
NA	A. NUMBER	NA						
	C. TYPE		D. ACCOUNT					
19. GOVT LAB/INSTALLATION/ACTIVITY			20. PERFORMING ORGANIZATION					
NAME: FAA			NAME:					
ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591			ADDRESS:					
RESP. INDIV.: L. Wuebker, ARD-150			INVESTIGATORS					
TELE: (202)426-9327			PRINCIPAL ASSOCIATE:					
21. TECHNOLOGY UTILIZATION			22. COORDINATION					
NA			NA					
23. KEYWORDS								
<u>Tower Systems Interface Documents</u>								
24. <u>Technical Objective:</u> Produce operational interface documents for systems integration of present and future terminal automation projects (WVAS, TAGS, TIPS, ARTS)								
25. <u>Approach:</u> Identify and analyze commonalities and system interactions in current and future system designs and present terminal automation systems which will enable preparation of systems interface documents. Several programs such as Wake Vortice (WVAS) Terminal Information Processing System (TIPS) and the Airport Surface Traffic Control (ASTC) among others culminate in data being displayed in the control tower. These developments for the most part proceeded independently. This subprogram will integrate and provide a system description for total system operation.								
26. <u>Milestones Scheduled for Accomplishment:</u>								
.Complete Analysis of System's Interactions			9/76					
.ARTS TIPS Interface Document			3/77					
26.A <u>Accomplishments for FY-76:</u>								
.Start System Description								
27. Source of Requirement			FAA-ED-11-1			28.		
29.			30. Precedence					
			31. Relevant Project Code					

I 012-151.

Items 1 to 29 identical to
DD Form 1-PA and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYM. RD 1753-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10A. CURRENT NUMBER/CODE I 012-152		10B. PRIOR NUMBER/CODE None			
11. TITLE: FSS/ARTCC Collocation Study and FSS/En Route Interface					
12. SCIENTIFIC OR TECH. AREA			13. EVENT DATE 10/76	14. CHIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. AMOUNT:				
18. GOVT LAB/INSTALLATION ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDV.: L. Wuebker, ARD-150 TEL: (202)426-9327			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATOR: PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS FSS/En Route Interface Documents					
24. <u>Technical Objective:</u> Produce operational interface documents for collocated FSS/ARTCC facilities.					
25. <u>Approach:</u> A study and analysis in cooperation with ARD-440 will be conducted for the personnel functions and duties and methods of collection and presentation of weather data in a collocated FSS/ARTCC facility. Problem areas, commonalities of duties, expanded services, and all aspects of the operational facilities interactions will be examined and analyzed. System interfaces between NAS Stage A and automated FSS facilities will be defined and documented in FY-1977.					
26. <u>Milestones Scheduled for Accomplishment:</u> <div style="display: flex; justify-content: space-between;"> .Complete FSS/En Route Interface Documents 6/77 </div>					
26.A <u>Accomplishments for FY-76:</u> <div style="display: flex; justify-content: space-between;"> .ARD-440 Task Study and Analysis of collocated FSS/ARTCC Facility Completed </div>					
27. Source of Requirement FAA-ED-01-1A			28.		
29.			30. Precedence		
			31. Relevant Project Code		

I 012-152

Items 1 to 26 identical to
DD Form 1416 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. GOVT ACCESSION	2. AGENCY ACCESSION	REPORTS IDENT. SYM.
		NA	NA	RD 1713-1
4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGARDING	8. RELEASE LIMITATION
10/1/76	A	U	NA	NL
10. CURRENT NUMBER/CODE		11. PRIOR NUMBER/CODE		
I 012-153		None		
12. TITLE				
IPC/ATC System Interface				
13. SCIENTIFIC OR TECH. AREA		14. START DATE	15. CRIT. COMPL. DATE	16. FUNDING AGENCY
NA		10/76		
17. PROCEDURE METHOD	18. CONTRACT/GRANT	19. DATE		
NA	NA			
20. GOVT LAB/INSTALLATION/ACTIVITY		21. PERFORMING ORGANIZATION		
NAME: FAA		NAME:		
ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591		ADDRESS:		
RESP. INDIV.: Herbert A. Wachsman, ARD-150		INVESTIGATORS		
TEL: (202)426-9327		PRINCIPAL ASSOCIATES		
22. TECHNOLOGY UTILIZATION		23. COORDINATION		
NA		NA		
24. KEYWORDS				
Terminal, En Route, Controller, Pilot, DABS/IPC, GAT II, DSF, TATF, SSF, Simulation				
24. <u>Technical Objective:</u> Develop ATC procedures for utilization of IPC to increase safety in the terminal and en route ATC environments.				
25. <u>Approach:</u> NAFEC in-house resources will be utilized to design, test, and produce data in a simulated terminal and en route ATC environment to determine pilot controller and system interactions for development of procedures for control of IFR aircraft in a mixed IFR/VFR IPC system. Determine the feasibility of using IPC as an emergency control channel. Changes to ATC techniques and procedures and possible changes to separation standards and airspace definitions are envisioned as end products. The operational IPC/ATC system interface will also be defined.				
26. <u>Milestones Scheduled for Accomplishment:</u>				
.Test Design		1/77		
.Terminal Simulation		4/77		
.En Route Simulation		9/77		
.Operational System Simulation		2/78		
.Final Report		4/78		
.Recommended Changes to ATC Procedures		6/78		
.Interface Definition Document		12/78		
26.A <u>Accomplishments for FY-76:</u>				
None				
27. Source of Requirement		28.		
FAA-ED-01-1A				
29.		30. Precedence		
		31. Relevant Project Code		

I 012-153

Items 1 to 26 identical to
DD Form 1698 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYM. RD 1770-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE I 013-150			10A. PRIOR NUMBER/CODE None		
11. TITLE: In-Service ATC Simulations					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE 10/76	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. ACCOUNT:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Joseph P. O'Brien, ARD-150 TEL: (202) 426-9327			23. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
25. KEYWORDS Operational Scenarios, Ames, STOL, NASA, fuel optimization					
24. <u>Technical Objective:</u> Provide operational scenarios to exercise high performance flight simulators at Ames Research Center, to evaluate advanced 4D electronics systems, and for live flight tests of a modified augmented wing Buffalo STOL aircraft. Assist NASA with operational inputs, test development and evaluation and with fuel optimization programs.					
25. <u>Approach:</u> Provide scenarios traffic models and test design for STOL simulation at Ames. Provide scenarios for live tests of augmented wing Buffalo STOL. Provide operational support to Ames for flight simulator and flight experiments at Ames Research Center.					
26. <u>Milestones Scheduled for Accomplishment:</u> .Phase II Simulation (includes wind shear) 10/76 .Report completed on Fuel Optimization Approaches 8/77					
26A. <u>Accomplishments for FY-76:</u> Scenarios for Live Tests at Crows Landing Scenarios for Fuel Optimized Studies					
27. Source of Requirement 9550 AVP 200-1			28.		
29.		30. Precedence 31. Relevant Project Code			

I 013-150

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMB. RD 1750-1
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME A	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RELEASE Subprogram
11. CURRENT NUMBER/CODE I 013-151		12. PRIOR NUMBER/CODE None			
13. TITLE: Concepts Affecting Separation Standards					
14. SCIENTIFIC OR TECH. AREA NA		15. START DATE 10/76	16. CRIT. COMPL. DATE	17. FUNDING AGENCY	
18. PROCEDURE METHOD NA	19. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AMOUNT:				
20. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591		21. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TELE: TYPE:			
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA			
24. KEYWORDS Optimize Concepts for Reduced Terminal Radar Separation Standards					
25. <u>Technical Objective:</u> Study and produce concept documents for maximum utilization of terminal area airspace by means of developing criteria for new terminal radar separation standards.					
26. <u>Approach:</u> In conjunction with NAFEC simulation facilities various mixes of traffic scenarios will be tested utilizing different terminal airspace environments. Special Air Traffic Control concepts and theories will be validated in a test environment. Among these are: aircraft speed, class, sequencing, and airport size fix relationships. The results will provide validated concept documents for terminal radar separation standards.					
27. <u>Milestones Scheduled for Accomplishment:</u>					
Collection of Speed, Class, Sequencing Data			12/76		
Speed, Class Sequencing Simulations and Tests Complete			8/77		
Final Documentation - Speed, Class Sequencing Techniques Report			11/77		
28.A <u>Accomplishments for FY-76:</u>					
Start Concept Design					
29. Source of Requirement FAA-ED-01-1A		30. Precedence 20.			
31. Relevant Project Code					

I 013-151

Items 1 to 26 Relatd to
DD Form 1698 Rev
NASA Form 1122

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYM. RD 1750.1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REQ. ADIN. NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram		
10A. CURRENT NUMBER/CODE I 013-152				10B. PRIOR NUMBER/CODE None			
11. TITLE: In-Service ATC Simulations							
12. SCIENTIFIC OR TECH. AREA NA				13. START DATE 10/76	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
16. PROCURE. METHOD NA		17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. AMOUNT:					
19. GOV'T LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Joseph P. O'Brien, ARD-150 TEL: (202) 426-9327				20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA				22. COORDINATION NA			
23. KEYWORDS Simulation, ATC In-Service, ATC Studies							
24. <u>Technical Objective:</u> To provide proficient development and management for Air Traffic Control simulations requested by operating services, technical services, and/or municipalities or governments. This program is based on prior years experience and to provide a vehicle to quickly initiate work on what is always a time critical request. It is established for the purpose of planning the utilization of SRDS in-house and NAFEC personnel and resources and assumes three 6 week simulations each year.							
25. <u>Approach:</u> In-house SRDS and NAFEC resources, with contract support when required, will be used to examine ATC simulation requirements received, to provide responsive studies, to plan and perform/or direct necessary simulations and provide analysis and reports based on findings.							
26. <u>Milestones Scheduled for Accomplishment:</u> .Graphic vs Dynamic Simulation study completed 9/76 .Schedule Simulations as Requests are Received Continuous							
26.A <u>Accomplishments for FY-76:</u> .Phase I Simulation for NASA Ames Completed .Request for Las Vegas Study completed							
27. Source of Requirement SRDS Functional Statement 28.							
29.				30. Precedence			
				31. Relevant Project Code			

I 013-152

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

02 RADAR

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REG. NO. NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 021-241		10b. PRIOR NUMBER/CODE 241-021			
11. TITLE: RADAR SUSTAINING ENGINEERING					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA	
16. PROCURE METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AGENCY:				
18. GOVT. LAB/INSTALLATION ACTIVITY NAME: FAA/SRDS 2100 Second Street, S. W. ADDRESS: Washington, D. C. 20591		19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
20. INDIVIDUAL Kenneth E. Coonley, ARD-243 TEL: 202-426-8576					
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Performance monitoring, Radar, Statistical detection, Weather analysis					
24. Technical Objective: To provide technical effort in response to requests for R&D or, as indicated by analyses, to sustain an acceptable performance level of the ASR and ARSR systems.					
25. Approach: SRDS, with contractor and NAFEC support, will (a) develop, procure, and test radar monitoring systems to insure that the radars are operating within specified tolerances; (b) develop and test techniques to improve the weather detection capability of ATC radars; and (c) develop and test miscellaneous radar in-service fixes.					
26. Milestones Scheduled for Accomplishment:					
<ul style="list-style-type: none"> Improved weather detection and display of weather data Final Report Intermediate Radar Performance Monitor TDP Full Radar Performance Monitor TDP ARSR Alignment/Adjustment Report 				7/77 11/77 12/77 1/78	
26 A. Accomplishments FY-76:					
<ul style="list-style-type: none"> Modified ASR-7 Enhancer PC boards and Technical Data Package delivered to AAF Analysis of Radar adjustments for improved weather detection completed. 					
27. Source of Requirement Program Plan 9550 AAT-100-330 FAA-ED-02-1		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I 021-241

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1722.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMB. RD-1750-1
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
11. CURRENT NUMBER/CODE I 022-241		12. PRIOR NUMBER/CODE 241-022			
13. TITLE: IMPROVED RADAR SUBSYSTEMS					
14. IDENTIFY OR YEAR AHEAD NA		15. START DATE	16. CRIT. COMPL. DATE	17. FUNDING AGENCY FAA	
18. PROPOSED BY: NA	19. CONTRACT/GRANT A. NUMBER: NA B. TYPE: NA C. AMOUNT:				
20. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: Kenneth E. Coonley, ARD-243 TEL: 202-426-8576		21. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA			
24. KEYWORDS Antenna, Radar, Pattern, Gain, Beacon					
25. Technical Objective: To improve radar performance in detecting aircraft through the development of advanced antenna techniques.					
26. Approach: SRDS, with contractor and NAFEC support, will provide for the development of an advanced antenna for ASR-() that will use polarization diversity techniques to permit radar and beacon operation with the same feed and reflector. This antenna will provide a constant gain with altitude radar pattern which will permit more uniform detection in all parts of the beam and will also provide an independent beacon coverage pattern with monopulse capability.					
27. Milestones scheduled for Accomplishment: • Program authorization to proceed Pending					
28. 26 A. Accomplishments FY-76: • ASR-() mini-program plan submitted for approval					
29. Source of Requirement Program Plan FAA-ED-02-01		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			
		I 022-241			

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION	3. AGENCY ACCESSION	REPORTS IDENT. SYMB.
4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGARDING	8. RELEASE LIMITATION	9. LEVEL OF RESUME
10/1/76	A	U	NA	NL	Subprogram
10a. CURRENT NUMBER/CODE		10b. PRIOR NUMBER/CODE			
I 022-242		N A			
11. TITLE:					
HAZARDOUS WEATHER DETECTION					
12. SCIENTIFIC OR TECH. AREA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
N A				FAA	
16. PROCURE. METHOD	17. CONTRACT/GRANT		18. DATE		
NA	A. NUMBER: NA				
	B. TYPE:		C. AMOUNT:		
19. GOVT LAB/INSTALLATION/ACTIVITY		20. PERFORMING ORGANIZATION			
NAME: FAA/SRDS		NAME:			
ADDRESS: 2100 Second Street, S. W.		ADDRESS:			
Washington, D. C. 20591					
RESP. INDIV.: Kenneth E. Coonley, ARD-243		INVESTIGATORS			
TEL: 202-426-8576		PRINCIPAL:			
		ASSOCIATE:			
		TEL:			
		TYPE:			
21. TECHNOLOGY UTILIZATION		22. COORDINATION			
NA		NA			
23. KEYWORDS					
Radar, Weather detection, pulse doppler					
24.					
Technical Objectives: Develop techniques to detect hazardous weather turbulence using existing ATC radars.					
25. Approach: SRDS, with contractor and NAFEC support, will provide for an analysis and experimentation effort to determine the feasibility of using pulse doppler radar to detect hazardous weather turbulence. The techniques developed will be applicable to ASR type systems equipped with MTD.					
26. Milestones Scheduled for Accomplishment:					
<ul style="list-style-type: none"> Contract award Data collection completed Final Report issued 					
26 A. Accomplishments FY-76:					
<ul style="list-style-type: none"> New effort 					
27. Source of		28.			
ADA-1/AED-1/ARD-1/2 direction 6/25/76		Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I 022-242

Items 1 to 26 identical to
DD Form 1490 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. R. GRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram		
10A. CURRENT NUMBER/CODE I 022-243				10B. PRIOR NUMBER/CODE 023-241, 241-027			
11. TITLE: ARTIS III/ASR INTERFACE*							
12. SCIENTIFIC OR TECH AREA NA				13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA	
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AGENCY:						
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: Kenneth E. Coonley, ARD-243 TEL: 202-426-8576				20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA				22. COORDINATION NA			
23. KEYWORDS Target detection, Tracking, Blind speed, Signal processing, Digital filtering, Radar, Pulse doppler, Clutter, Micro-programmable processor.							
24. Technical Objective: Develop an advanced radar processor which will greatly improve the radar detection capability in all adverse radar clutter environments and present a target message output virtually free of false alarms.							
25. Approach: SRDS, with contractor and NAFEC support, will provide for the development, test, and evaluation of a Moving Target Detector (MTD) for terminal and en route radar systems. The MTD is an advanced radar signal processor that provides greatly improved detection of aircraft in the presence of ground and precipitation clutter and also greatly improved radar tracking capability for automated systems.							
26. Milestones Scheduled for Accomplishment:							
<ul style="list-style-type: none"> • MTD-I Breadboard T&E Final Report issued • MTD-II terminal and en route contract award • MTD-II installed at terminal radar field site • MTD-II Technical Data Package Complete 						9/76 8/76 2/77 5/78	
26A. Accomplishments FY-76:							
<ul style="list-style-type: none"> • Test and evaluation of MTD-I breadboard completed 							
*Title inappropriate since effort expanded beyond ARTIS III - suggest revision of title to "Moving Target Detector (MTD)."							
27. Source of Requirement Program Plan FAA-ED-02-1				28. Blank			
29. Blank				30. Precedence Blank			
				31. Relevant Project Code			

I 022-243

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10A. CURRENT NUMBER/CODE I 023-241		10B. PRIOR NUMBER/CODE NA			
11. TITLE: LIMITED SURVEILLANCE RADAR (LSR) *					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: 4. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: Kenneth E. Coonley, ARD-243 TEL: 202-426-8576			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Radar, Surveillance, Short range					
24. Technical Objective: To develop a radar system that meets the surveillance requirements of VFR airports that do not qualify for full ASR operation.					
25. Approach: SRDS, with contractor and NAFEC support, will develop and test a low power, low cost, solid state radar system that will employ state-of-the-art radar techniques. This radar will be a single channel terminal surveillance radar which will operate up to a range of 20 nautical miles with a smaller antenna than present ASR systems.					
26. Milestones Scheduled for Accomplishment:					
<ul style="list-style-type: none"> • Cost/benefits analysis initiated • Cost/benefits analysis completed • Program authorization to proceed 					
26A. Accomplishments FY-76:					
<ul style="list-style-type: none"> • New effort 					
*cost/benefit analysis is being done by ASP-100 and is not currently funded in ARD-1 exhibit.					
27. Source of Requirement ATF-1 letter 2/2/76			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I 023-241

Items 1 to 26 identical to
DD Form 1, 7A and
NASA Form 1122.

03 BEACON

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION	3. AGENCY ACCESSION	4. REPORTS IDENT. SYST.
4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGRADING	8. RELEASE LIMITATION	9. LEVEL OF RESUME		
10/1/76	D	U	NA	NL	Subprogram		
10A. CURRENT NUMBER/CODE				10B. PRIOR NUMBER/CODE			
I 031-241				242-008			
11. TITLE:							
ATCRBS SUSTAINING ENGINEERING							
12. SCIENTIFIC OR TECH. AREA				13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
NA						FAA	
16. PROCURE. METHOD		17. CONTRACT/GRANT		18. RESOURCES EST.		19. PROFESSIONAL	
NA		NA		PRIOR FY		FAN-YEARS	
				CURRENT FY			
19. GOVT LABORATORY/ACTIVITY				20. PERFORMING ORGANIZATION			
NAME: FAA/SRDS				NAME:			
ADDRESS: 2100 Second Street, S. W.				ADDRESS:			
Washington, D. C. 20591							
RESP. INDIV.: Martin Natchipolsky, ARD-241				INVESTIGATORS			
TEL: (202) 426-8563				PRINCIPAL			
				ASSOCIATE			
21. TECHNOLOGY UTILIZATION				22. COORDINATION			
NA				NA			
23. KEYWORDS ATCRBS- Aircraft Antennas- ATCRBS Interference - Transponder- Altimeter Digitizer							
24. Technical Objective: To provide technical effort in response to requests for R&D or as indicated by analyses to sustain an acceptable performance level of the ATC Radar Beacon System.							
Approach: SRDS and NAFEC with the support of Regions and contractors will (1) investigate and analyze technical problems that affect the ATCRBS system operational capability, (2) design and test "fixes" for correcting equipment or facility site problems, and (3) prepare project reports and production procurement data packages.							
26. Milestones Scheduled for Accomplishment:							
. Respond to field site problem investigation requests						as requested.	
. Respond to requests for R,D & E effort						as requested	
. Mobile Siting Van Delivered to AAF						10/76	
26A. Accomplishments FY-76:							
. Complete report on Improved Beacon Feed							
. Complete specification information and supporting documentation for mobile siting facility.							
27. Source of Requirement				28. Blank			
R&D Program Plan FAA-ED-03-2							
29.				30. Precedence Blank			
				31. Relevant Project Code			
I 031-241				Items 1 to 26 identical to DD Form 147R and			

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REG. ACING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 032-241			10b. PRIOR NUMBER/CODE		
11. TITLE: ATCRBS MONITORING & POLICING					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE		14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20590 RESP. INDIV: Martin Natchipolsky, ARD-241 TEL: (202) 426-8563			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS ATCRBS - ATCRBS Interference - Interrogation Density - Suppression Rates - Monitor					
24. Technical Objective: To provide the instrumentation and capability to measure the beacon environment in order to detect system interference and to collect and analyze pertinent system performance indicators.					
25. Approach: SRDS, with NAPEC and contractor support, will provide systems analysis of potential and measured interference to ATCRBS, either self-generated or from external sources. The means to avoid, eliminate or minimize such interference will be examined and solutions recommended.					
26. Milestones Scheduled for Accomplishment:					
<ul style="list-style-type: none"> In-house Analysis of Collected Interrogation Environment Data Award Contract for Analysis of Inter-system Interference Potential Analysis Completed & Report Issued 				On-going 1/78 11/78	
26a. Accomplishments FY-76:					
Flight Inspection Monitors Delivered to Flight Standards Service					
27. Source of Requirement E & D Program Plan FAA-ED-03-2			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		
			I 032-241		

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME				1. NA	4. GOVT ACCESSION	3. AGENCY ACCESSION	5. REPORTS ILLUSTR. SYMBOL
4. DATE OF RESUME	8. KIND OF RESUME	6. SECURITY	7. REGRADING	NA	NA	NA	ED 1750 1
10/1/76	D	ART U	NA			NL	Subprogram
10A. CURRENT NUMBER/CODE				10B. PRIOR NUMBER/CODE			
I 033-241				242-001			
11. TITLE:							
ATCRBS TRANSMITTER SITE EQUIPMENT							
12. SCIENTIFIC OR TECH. AREA				13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
NA						FAA	
16. PROCURE. METHOD	17. CONTRACT/GRANT		18. DATE:	19. RESOURCES EST.	20. PROFESSIONAL MAN-YEARS	21. FUNDS (In thousands)	
NA	A. NUMBER: NA		B. TYPE: NA	PRIOR FY			
			C. AMOUNT:	CURRENT FY			
19. GOVT LAB/INSTITUTION/ACTIVITY				20. PERFORMING ORGANIZATION			
NAME: FAA/SRDS				NAME:			
ADDRESS: 2100 Second St. S. W.				ADDRESS:			
Washington, D. C. 20591							
RESP. INDIV.: Martin Natchipolsky, ARD-241				INVESTIGATORS			
TEL: (202) 426-8563				PRINCIPAL:			
				ASSOCIATE:			
21. TECHNOLOGY UTILIZATION				22. COORDINATION			
NA				NA			
23. KEYWORDS							
ATCRBS - Decoder - Interrogator - Receiver - Antenna- Monitor - Monopulse							
24. Technical Objective: To improve the system performance, capability, and reliability of the ATCRBS to meet present and future ATC systems requirements through the development of new equipment and/or modifications for existing ATCRBS components and subsystems.							
25. Approach: SRDS, with contractor, NAFEC, and TSC assistance, will develop, test and evaluate a new monopulse receiver/processor and enhanced models of the improved ATCRBS antennas to provide improved beacon coverage and quality of reported surveillance data for Terminal and En Route ATC. A production specification will be prepared for the new processor subsystem in order to permit procurement of the equipment for field implementation. Reports and specification change recommendations will be prepared upon completion of the range tests of the improved ATCRBS antennas.							
26. Milestones Scheduled for Accomplishment:							
. Separate Rotator/Hopover Tech Data Package Delivered						12/76	
. Monopulse NADIF Tech Data Package Delivered						2/77	
. Improved Open Array (5-ft) Field Eval Complete						3/77	
. ATCRBS Monopulse Processing System (AMPS) Tech Data Pack. Dlvr'd						10/77	
26A Accomplishments FY-76:							
. Enhanced open array specification data package handed off							
. Integral suppression and hopover T&E completed							
. E-Scan antenna T&E reports completed							
9550.1 AAF-75-01							
27. Source of Requirement 9550.1 AAF-75-04 & R&D Program Plan FAA-ED-03-2				28. Blank			
29.				30. Precedence Blank			
				31. Relevant Project Code			

I 033-241

Items 1 to 26 identical to
DD Form 149F and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION RL	9. LEVEL OF FUNDING Subprogram
10. CURRENT NUMBER/CODE I 034-242			10A. PRIOR NUMBER/CODE NA		
11. TITLE: INTERMITTENT POSITIVE CONTROL (IPC)					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20590 RESP. INDIV.: Dan L. Hopson TEL: 202-426-8340			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS IPC, DABS, Upgraded Third Generation ATC System					
24. Technical Objective: To develop a new safety assurance service called Intermittent Positive Control (IPC) for the projected 1995 traffic environment and allowing evolutionary implementation at low user cost by providing automatic ground-based conflict detection and resolution to VFR aircraft via two way Data Link.					
25. Approach: SRDS and NAFEC, with contractor support, will carry out a multi-year development effort in accordance with IPC Program Plan FAA-ED-01-3. Effort includes development of concept and algorithms, simulation, ATC operational definition, special purpose IPC/DABS site processor design, hardware procurement, terminal and enroute system interface, test and evaluation, and preparation of production specifications. Phase I, system engineering will consist of IPC flight tests carried out at the DABS experimental facility. The IPC Hardware/Software Engineering Model Development is being carried out under subprogram 034-241 (DABS). Phase II tests, conducted at NAFEC will demonstrate and validate Phase I.					
26. Milestones Scheduled for Accomplishment:					
				10/76	
• Hardware/Software Contract Critical Design Review (CDR)				11/77	
• 1st IPC Ground and Avionics Systems Delivered				8/78	
• Begin Multi-Site Tests				7/79	
• Begin Field Trials at Philadelphia				1/80	
• Tech Data Package Handoff					
26A. Accomplishments FY-76:					
• IPC Hardware/Software Contract Awarded					
• Revised IPC Algorithm Published					
27. Source of Requirement: IPC ATC Report & Program Plan FAA-ED-01-3			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		
I 034-242					

Items 1 to 26 identical to

DD Form 149A and

NASA Form 1122.

04 NAVIGATION

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRA.D.MG NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE II 041-307			10b. PRIOR NUMBER/CODE NA		
11. TITLE: VOR IMPROVED/NEW SYSTEM DEVELOPMENT					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE NA	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:		NA		
18. GOV'T LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: Robert Fletcher, ARD-331 TEL: 202-426-8596			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Navigation, VORTAC System, VOR, DVOR					
24. <u>Technical Objective:</u> To develop new VOR systems and update the present VOR system components in order to meet future needs for increased NAS capacity and reduce operational costs.					
25. <u>Approach:</u> SRDS, in conjunction with NAFEC, the Aeronautical Center and contractor support, will develop, test and evaluate techniques and hardware necessary to achieve the technical objectives. Included are: a) develop specification data for 2nd Generation VORTAC, including remote maintenance monitor systems and; b) determination of 2nd Generation performance requirements for the 50 kHz environment.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
<ul style="list-style-type: none"> . Wide Aperture PVOR Evaluation Compl. 10/76 . Preliminary RMMS Report by NAFEC 2/77 . 50 kHz Report 2/77 . Solid State VOR to NAFEC 3/77 . Specification for Basic VOR, 2nd Generation 4/77 . Final 2nd Generation Specification to AAF 8/77 . FM/FM VOR Evaluation Completed 9/77 					
26A. <u>Accomplishments FY-76</u>					
<ul style="list-style-type: none"> . RMMS Test Bed to NAFEC . 50 kHz Tests at NAFEC initiated . EDO Design Plan (RMMS) Completed 					
27. Source of Requirement 9550-1 AAF-76-4, FAA-ED-04-1			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		
II 041-307					

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REG. IDING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE I-042-306		10A. PRIOR NUMBER/CODE N/A			
11. TITLE: TACAN/DME MAINTENANCE/SUSTAINING ENGINEERING					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE NA	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AMOUNT:	NA			
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDV.: A. W. Randall, ARD-332 TEL: 202-426-8596		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Air Navigation, VORTAC, TACAN, DME					
24. Technical Objective: To provide technical efforts and products for the correction or alleviation of field TACAN/DME problems as they arise.					
25. Approach: In accordance with the needs for specific problems, SRDS and/or NAFEC resources will be utilized to provide corrective measures and products. As necessary, support will be provided through I-A agreements and contractual efforts.					
26. Milestones Scheduled for Accomplishment None.					
26A. Accomplishments FY-76: .Completed Technical Data on RTA-2 Antenna Modifications for Site and Weather Effects .Completed Technical Data for RTC-3 15 Hz Azimuth Monitor Modifications					
27. Source of Requirement Form FAA 9550-1 or recognized need.		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code None.			
II-042-306					

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1177.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE II-042-308		10b. PRIOR NUMBER/CODE NA			
11. TITLE: TACAN/DME IMPROVED SYSTEM DEVELOPMENT					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE NA	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: NA c. DATE: NA d. AMOUNT: NA		NA		
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: A. W. Randall, ARD-332 TEL: 202-426-8596		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Air Navigation, NAVAIDS, VORTAC System, TACAN, DME					
24. <u>Technical Objective:</u> To develop technical requirements for second generation TACAN/DME equipment which: (1) will satisfy economic objectives and current system performance requirements; and (2) provide the capability to support increased navigation services.					
25. <u>Approach:</u> SRDS and NAFEC resources will be utilized in development engineering efforts leading to definition of requirements for specifications. Contractor support will be used to the extent necessary.					
26. <u>Milestones Scheduled for Accomplishment:</u> .Preliminary specification data for second generation TACAN/DME 3/77 .Final Specification data for second generation TACAN/DME 12/77					
26A. <u>Accomplishments FY-76</u> .Evaluation Report on Digital Data Broadcast System .Report on RMMS/F Sensor Interface System for Existing TACAN					
27. Source of Requirement of Directive from Assoc. Admin., ESD-04-1 Nav. Program Plan			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			
II-042-308					

Items 1 to 26 identical to
DD Form 147R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOV. ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE II 043-304			10b. PRIOR NUMBER/CODE NA		
11. TITLE: VLF SUPPLEMENT FOR VOR/DME					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE NA	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:		NA		
18. GOV. LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W., Washington, D. C. 20591 RESP. INDIV.: George H. Quinn, ARD-333 TEL: 202-426-8596			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS OMEGA, Differential OMEGA, VLF					
24. <u>Technical Objective</u> : Determine the suitability of VLF based navigation as a supplement to the VOR/DME system, and thereby limit the necessity to expand the VOR/DME system.					
25. <u>Approach</u> : The total effort will include studies and equipment evaluations. The work will be supported by in-house personnel, by a technical assistance contractor and other contractors as needed, by NAFEC, and by other Government agencies.					
26. <u>Milestones Scheduled for Accomplishment</u> :					
<ul style="list-style-type: none"> . VLF Noise cancellation antenna evaluation completed 12/76 . Study of OMEGA as VOR/DME supplement completed (SCI) 4/77 . Differential OMEGA feasibility evaluation completed (NAFEC) 5/77 . OMEGA as a VOR/DME supplement evaluation completed (NAFEC) 9/77 . Assessment of navigation requirements and systems completed (SCI) 4/77 					
26A. <u>Accomplishments FY-76</u>					
<ul style="list-style-type: none"> . VLF/OMEGA Monitor system design report published . Differential OMEGA feasibility evaluation interim report . Petroleum Helicopters, Inc., OMEGA evaluation 					
27. Source of Requirement Prog. Plan FAA-ED-04-1 Acq. Plan TSARC Approved 4/74					
29. Blank			28. Blank		
30. Precedence Blank			31. Relevant Project Code		
I 043-304			Items 1 to 26 identical to DD Form 149A and NSA Form 1122.		

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram		
10a. CURRENT NUMBER/CODE I 043-311				10b. PRIOR NUMBER/CODE NA			
11. TITLE: OCEANIC NAVIGATION SYSTEMS							
12. SCIENTIFIC OR TECH. AREA NA				13. START DATE NA	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:			NA			
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: George H. Quinn, ARD-333 TEL: 202-426-8596				20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA				22. COORDINATION NA			
23. KEYWORDS OMEGA, INS, VLF							
24. Technical Objective: Evaluate the suitability of VLF based navigation as a replacement for LORAN-A on oceanic routes, and subsequently as a partial or complete replacement of inertial navigation on oceanic routes.							
25. Approach: The total effort will include studies and equipment evaluation. The work will be supported by in-house personnel by a technical assistance contractor and other contractors as needed, by NAFEC, and by other government agencies.							
26. Milestones Scheduled for Accomplishment:							
<ul style="list-style-type: none"> 3.4 kHz OMEGA receiver evaluation completed 12 /76 Combined INS/VLF system evaluation completed 5 /77 OMEGA as a LORAN-A replacement evaluation completed (NAFEC) 1/77 INS/VLF combined system equipment delivered 8/76 Evaluation Report Civil OMEGA/VLF Airborne System 8/79 							
26A. Accomplishments FY-76:							
<ul style="list-style-type: none"> 3.4 kHz receiver installed in Pan American aircraft INS/VLF combined system contract awarded 							
27. Source of Requirement Program Plan FAA-ED-041-28 1 Acq. Plan TSARC Approval 1/74 Blank							
29. Blank				30. Precedence Blank			
				31. Relevant Project Code			
I 043-311							

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1												
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram												
10a. CURRENT NUMBER/CODE II 044-326			10b. PRIOR NUMBER/CODE NA														
11. TITLE: RNAV SYSTEM DESIGN																	
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE NA	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA												
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA a. TYPE: b. DATE: c. AMOUNT:		NA														
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: D. Michael Brandewie, ARD-333 TEL: 202-426-8596			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:														
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA														
23. KEYWORDS Air Traffic Control, Navigation, Airways, Automation, Avionics																	
24. <u>Technical Objective:</u> The objective is to accomplish the R&D effort outlined in the RNAV Task Force Report, "Application of Area Navigation in the National Airspace System," February 1973, necessary to support the implementation of RNAV.																	
25. <u>Approach:</u> In FY-74, 75 and 76 the RNAV implementation concepts were evaluated and modified and the substantial payoffs to RNAV were documented to support an implementation decision in FY-76. In FY-77 and ensuing years, a system contractor, SRDS in-house, NAFEC, and other contractors will be used to support RNAV implementation and finish the implementation tasks identified in the Task Force Report. The approach includes studies, enroute/terminal master plan, flight simulation/tests and real time/fast time simulations.																	
26. <u>Milestones Scheduled for Accomplishment:</u>																	
<table border="0"> <tr> <td>26.</td> <td>2D/3D avionics standards</td> <td>6/77</td> </tr> <tr> <td></td> <td>4D avionics standards</td> <td>1/78</td> </tr> <tr> <td></td> <td>Master Route Structure Submission</td> <td>9/79</td> </tr> <tr> <td></td> <td>Post 1982 enroute simulation</td> <td>5/79</td> </tr> </table>						26.	2D/3D avionics standards	6/77		4D avionics standards	1/78		Master Route Structure Submission	9/79		Post 1982 enroute simulation	5/79
26.	2D/3D avionics standards	6/77															
	4D avionics standards	1/78															
	Master Route Structure Submission	9/79															
	Post 1982 enroute simulation	5/79															
26A. <u>Accomplishments FY-76</u>																	
<table border="0"> <tr> <td>• 2D/3D JFK simulation complete</td> <td>• High altitude fast time simulation report</td> </tr> <tr> <td>• FAA/Industry Task Force Briefing</td> <td>• High altitude network study report</td> </tr> </table>						• 2D/3D JFK simulation complete	• High altitude fast time simulation report	• FAA/Industry Task Force Briefing	• High altitude network study report								
• 2D/3D JFK simulation complete	• High altitude fast time simulation report																
• FAA/Industry Task Force Briefing	• High altitude network study report																
27. Source of Requirement FAA/Industry Task Force Report			28. Blank														
29. Blank			30. Precedence Blank														
			31. Relevant Project Code														
II 044-326																	

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram		
10a. CURRENT NUMBER/CODE II 047-309				10b. PRIOR NUMBER/CODE N/A			
11. TITLE: NAVIGATION SYSTEM ACCURACY AND PERFORMANCE							
12. SCIENTIFIC OR TECH. AREA N/A				13. START DATE N/A	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY N/A	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:						
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D. C. 20591 RESP. INDIV.: A. Simolunas, ARD-330 TEL: 202-426-8596				20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA				22. COORDINATION NA			
23. KEYWORDS Navigation, Accuracy, Requirements, Separation STDS							
24. Technical Objective: To determine navigation requirements of the national Airspace system for CONUS, remote areas, off-shore and oceanic. This effort considers optimal use of all types of NAVAIDS including VOR, DME, TACAN, OMEGA, LORAN-C and GPS. Also considered are operational and cost/benefits factor such as RNAV, surveillance, route widths separation standards, etc. In addition, in response to request for accurate navigation system data, SRDS will develop and implement an airborne data collection analysis system for use at low altitudes for all type of NAVAIDS.							
25. Approach: NAFEC support will use to collect data on various NAVAIDS system; both those already in existence and also proposed systems. This data will be used to determine basic accuracies and reliabilities of these system. Using coverage, for different types, number and location of NAVAIDS the utility of various NAVAIDS will be determined based on cost/benefit factors. SRDS, in conjunction with NAFEC, will procure and develop the hardware and software required and integrate both into viable Navigation Flight Test System to efficiently evaluate navigation system at low altitudes. This will include items which will be delivered from Grumman upon closing of their contract.							
26. Milestones Scheduled for Accomplishments:				26A. Accomplishments FY-76:			
o Installation in Aircraft 4/77				Final report, Alaskan Air			
o Test and Evaluation 7/77				Navigation Requirement			
o Letter Report (NAFEC) 8/77							
27. Source of Requirement E&D Program Plan 04-1				28. Blank			
29. Blank				30. Precedence Blank			
				31. Relevant Project Code			

II 047-309

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE II 048-312		10A. PRIOR NUMBER/CODE NA			
11. TITLE: OPERATIONAL USE OF LORAN-C IN AVIATION					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE NA	14. CONT. COMPL. DATE NA	15. FUNDING AGENCY NA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:		NA		
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: George H. Quinn, ARD-333 TEL: 202-426-8596		19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS LORAN-C					
24. <u>Technical Objective:</u> Evaluate LORAN-C navigation as possible replacement for LORAN-A in oceanic areas, as a supplement VOR/DME in the domestic area, and as a potential replacement for VOR/DME in the U.S.					
25. <u>Approach:</u> The total effort will include studies and equipment evaluations. The work will be supported by in-house personnel, by a technical assistance contractor and other contractors as needed, by NAFEC, and by other government agencies.					
26. <u>Milestones Scheduled for Accomplishment</u>					
<ul style="list-style-type: none"> . Purchase of Teledyne LORAN-C airborne systems 1/77 . Systems Control, Inc., LORAN-C system study complete 6/77 . NAFEC LORAN-C Technical Evaluation Report 8/79 . ADL-81 LORAN-C receiver evaluation report (NAFEC) 10/76 . LORAN-C signal analysis system procurement contract 10/77 					
26A. <u>Accomplishments FY-76</u>					
<ul style="list-style-type: none"> . Continental Airlines LORAN-C evaluation - North Pacific . FAA/USCG Memorandum of Agreement - LORAN-C Development . FAA/USCG Coordinated LORAN-C Development Plan 					
27. Source of Requirement AED-1 Memo of Agreement, FAA/USCG, 2/76		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

II 048-312

Items 1 to 26 identical to
DD Form 149A and
NAS Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE II 049-330		10b. PRIOR NUMBER/CODE N/A			
11. TITLE: SATELLITE NAVIGATION DEVELOPMENT					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE NA	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: NA c. DATE: d. AMOUNT:		NA		
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591 RESP. INDIV.: A. A. Simolunas, ARD-330 TEL: 202-426-8596		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Satellite, Navigation, GPS/NAVSTAR, Timation					
24. <u>Technical Objective:</u> To determine the optimal characteristics of a satellite referenced radio navigation system which are required to satisfy the greatest possible segment of the civil aviation user community.					
25. <u>Approach:</u> Current satellite systems such as GPS/NAVSTAR, AEROSAT, MARISAT, etc., will be studied to determine their applicability. Modifications to these systems to allow use by low cost user groups will be determined.					
26. <u>Milestones Scheduled for Accomplishment:</u> <div style="display: flex; justify-content: space-between;"> <div> <ul style="list-style-type: none"> Preliminary report on GPS Applications GPS Hardware (ITRS Mods) Decision Point </div> <div> 10/76 6/77 </div> </div>					
26A. <u>Accomplishments FY-76:</u> <ul style="list-style-type: none"> Proposals received for DABS Engineering Development Test Bed 					
27. Source of Requirement FAA-ED-04-01			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

II 049-330

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

05 AIRBORNE SEPARATION
ASSURANCE

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 051-242			10b. PRIOR NUMBER/CODE 241-003, 051-241(partial)		
11. TITLE: Aircraft Visual Enhancement					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd St., SW Washington, D. C. 20591 RESP. INDIV.: Owen McIntire, ARD-250 TEL: (202) 426-9382			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Anti-collision lights, Navigation lights, Conspicuity Enhancement (CE)					
24. <u>Technical Objective</u> : Provide digest of technical background and recommendations on the topics requested by AFS-130 for their present and future work in ICAO and on U.S. regulations dealing with aircraft revelation lights, including anti-collision and navigation or position lights. Information will be obtained from on-site personal contacts for current R&D programs at military and civil research centers, from literature searches for recent (10 or 15 years) technical reports, from contacts with and the files of specialists, and from ICAO plus FAA documents, and texts.					
25. <u>Approach</u> : By 9/30/76 milestone for ICAO work, complete a report with recommendations, based only on literature search, acquisition, and digest (of all recent technical reports) related to anti-collision lights. Use 9/30/76 report to determine what further work the 9550 request from AFS would need.					
26. <u>Milestones Scheduled for Accomplishment</u> :					
<ul style="list-style-type: none"> Report on anti-collision lights 9/76 Determine further work needed to complete aircraft revelation lights support to AFS 10/76 					
26A. <u>Accomplishments FY-76</u> :					
<ul style="list-style-type: none"> Coordinated Program Plan with AFS-130 					
27. <u>Source of Requirement</u> 9550-PS-100-74-139 Draft Program Plan FAA-ED-05-1			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I 051-242

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. N/A	2. GOVT ACCESSION N/A	3. AGENCY ACCESSION N/A	REPORTS IDENT. SYMB. RD 25
4. DATE OF RESUME Oct. 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING N/A	8. RELEASE LIMITATION N/L	9. LEVEL OF RESUME Subprogram
10A. CURRENT NUMBER/CODE I 052-241			10B. PRIOR NUMBER/CODE 241-003		
11. TITLE: Collision Avoidance System					
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA
16. PROCURE. METHOD N/A	17. CONTRACT/GRANT A. DATE: B. NUMBER: C. TYPE: D. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St., SW Washington, D. C. 20591 RESP. INDIV.: John L. Brennan, ARD-250 TEL: (202) 426-9382			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS BCAS, Passive, Active, Semi-Active					
24. <u>Technical Objective:</u> To conduct the required R&D program which will lead to an operationally and economically sound all-weather airborne collision avoidance system.					
25. <u>Approach:</u> SRDS/NAFEC/TSC efforts and contract support will be utilized to conduct studies and analysis relating to theoretical applications of CAS techniques and to develop and/or test hardware to prove the technical, operational, and economic feasibility of these techniques.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
<ul style="list-style-type: none"> . Semi-Active BCAS delivered for government T&E 9/76 . Final T&E Report, Active & Semi-Active BCAS Systems (Experimental) 12/76 . Deliver Enhanced Active BCAS 11/76 . Active & semi-active BCAS Contract Award 6/77 . Draft BCAS National Standard 7/77 . Final BCAS Report 3/80 					
26A. <u>Accomplishments FY-76</u>					
<ul style="list-style-type: none"> . Basic Active BCAS Feasibility Demonstrated . Semi-Active BCAS (Experimental) T&E Begin . Basic Active BCAS Report 					
27. Source of Requirement Draft Program Plan FAA-ED-05-1			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I 052-241

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

06 COMMUNICATIONS

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750.1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME 1 D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE 1-061-222			11. PRIOR NUMBER/CODE		
12. TITLE ATC TELECOMMUNICATION COMMUNICATIONS STANDARDIZATION					
13. SCIENTIFIC OR TECH. AREA N/A			14. START DATE	15. CRIT. COMPL. DATE	16. FUNDING AGENCY
17. CONTRACT/GRANT NA		18. DATE			
19. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. AMOUNT:					
20. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20590 RESP. INDV.: David G. Rhoades TEL.: (202) 426-9354		21. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL ASSOCIATE TEL.: TYPE:			
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA			
24. KEYWORDS COMMUNICATIONS STANDARDS, VOICE COMMUNICATIONS STANDARDS, DIGITAL COMMUNICATION STANDARDS, FEDERAL STANDARDS, INTERNATIONAL STANDARDS.					
25. Technical Objective: To assist in the development and design of federal and international communication standards and procedures and determine the impact of FAA utilization of developed standards.					
26. Approach: SRDS, with contractor support, will participate on federal, national, and international standards groups. FAA's communications requirements will be made known and considered in the formation of standards.					
26 Federal Standard Milestones Scheduled for Accomplishment					
<ul style="list-style-type: none"> Telecommunications systems performance standard - drafted 11/76 9600 baud MODEM standard - drafted 12/76 Data link control procedures standard - finalized 8/77 Message formats standards - drafted 9/77 					
Accomplishments FY 76					
26A					
<ul style="list-style-type: none"> Telecommunications glossary - drafted Data Link control procedures - drafted MODEMS (2400/4800 baud) drafted Telephone signaling/supervision - drafted 					
27. Source of Requirement NCS ltr. 10/6/72 to AAT-360			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		
1-061-222					

Trans. 1-061-222 identical to
100 Form 100-100
NASA Form 100-100

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION	3. AGENCY ACCESSION	REPORTS IDENT. SYMB.
4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGRADING	8. RELEASE LIMITATION	9. LEVEL OF RESUME
10/1/76	D	U	NA	NL	Subprogram
10a. CURRENT NUMBER/CODE		10b. PRIOR NUMBER/CODE			
I062-221					
11. TITLE:					
AIR/GROUND COMMUNICATION FACILITIES					
12. SCIENTIFIC OR TECH. AREA		13. START DATE		14. CRIT. COMPL. DATE	
N/A				15. FUNDING AGENCY	
16. PROCEDURE METHOD		17. CONTRACT GRANT		18. DATE	
NA		NA			
19. GOVT LAB/INSTALLATION/ACTIVITY		20. PERFORMING ORGANIZATION		21. TYPE	
NAME: FAA/SRDS		NAME:			
ADDRESS: 2100 Second Street, S. W.		ADDRESS:			
Washington, D. C. 20590					
RESP. INDIV.: Sherman P. Tynes, ARD-221		INVESTIGATORS			
TEL: (202) 426-0986		PRINCIPAL:			
		ASSOCIATE:			
21. TECHNOLOGY UTILIZATION		22. COORDINATION			
NA		NA			
23. KEYWORDS					
A/G, RADIO COMMUNICATIONS, VOICE TRANSMISSION, REMOTE SITE, RADIO CONTROL, ANTENNA					
24. Technical Objective: To improve the effectiveness of ATC Communications by modernizing the design and flexibility of air/ground facilities and to develop equipments and techniques that will provide reliable, economical operations consistent with the future NAS. A compatible control and remote site equipment complement for the various ATC services is the objective.					
25. Approach: SRDS with NAFEC, other FAA services and contractor support, will develop, evaluate and provide for field use, advanced radio and radio control systems suitable for A/G communications through new or updated multi-purpose air/ground facilities. Efforts will include a replacement radio communication control system, an improved antenna system and an effective monitoring capability.					
26. Milestones scheduled for accomplishment					
Complete Antenna System Study 9/77					
Complete Radio Control Procurement Pkg 7/77					
Production RCCS Specification 4/80					
26A. Accomplishments FY 76:					
25 kHz equipment mods completed					
Phase I of multi-purpose A/G facility study completed					
27. Source of Requirement		28. Blank			
9550-1.AAF-76-6					
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I 062-221

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS 10-11. JMS. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 063-221			10b. PRIOR NUMBER/CODE 062-223		
11. TITLE COMMUNICATION SWITCHING AND CONTROL SYSTEM DEVELOPMENT					
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PREVIOUS KEYWORDS NA	17. CONTRACT/GRANT a. NUMBER NA b. TYPE c. AGENCY				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20590 RESP. INDV.: James R. Monnie, ARD-223 TEL: (202) 426-0986			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS COMMUNICATIONS, TERMINAL SWITCHING, RADIO CONTROL					
24. <u>Technical Objective:</u> To provide the agency with reliable and consolidated terminal communications switching subsystems of the Integrated Communications System, embodying all the intercom, interphone, administrative and air-ground radio switching functions that are required to permit effective and timely air-traffic-control operations, between ARTCCs, TRACONS, ATCTs, FSSs and their respective trunk, remote, and inter-station operational points.					
25. <u>Approach:</u> SRDS, with NAFEC and contractor support, will develop and evaluate a communications switching system for use in large Flight Service Stations, providing a technical data package to the operating services.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
. Engineering Requirement			1/77		
. Prototype Contract Awarded			4/77		
. Delivery of System			4/78		
. Test and Evaluation of System			6/78		
. Completion of T&E			8/78		
. Technical Data Package			10/78		
26a. <u>Accomplishments FY-76:</u>					
Draft Final Terminal Communications Switching System Specification delivered					
27. Source of Requirement 955021, AAT-100-30 dtd 11/20/74			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

1 063-221

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 172-1	
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram	
10. CURRENT NUMBER/CODE I 064-221			10A. PRIOR NUMBER/CODE			
11. TITLE: Ground/Ground Networks and Switching Centers						
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA	
16. PROCUREMENT METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: C. AMOUNT:					
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20590 PRINC. INDIV.: Arthur K. Kingsley, ARD-222 TEL: 202 - 426-8500			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA			
22. KEYWORDS Digital Communications Network, Message Switching Systems, Automation						
23. <u>Technical Objective:</u> To design and develop a digital communication switching sub-system and ground-to-ground data networks which integrate and serve the total ground-to-ground digital communications requirements of an agency integrated communications system.						
25. <u>Approach:</u> SRDS, with contractor support, has developed a Technical Data Package for the initial National Airspace Data Interchange Network (baseline NADIN). Design definition will continue to provide additional functions and services to accommodate required NADIN enhancements. These enhancements will be met through in-house contractor aided support as a continuation of the work being performed under baseline NADIN.						
26. <u>Milestones Scheduled for Accomplishment:</u>						
. Initial Technical Data Package hand-off to AAF for NADIN Enhancement Phase I						5/77
. Final data package hand-off to AAF for NADIN Enhancement Phase I						11/77
. Provide technical support to AAF during initial NADIN procurement and implementation						Continuing
26a. <u>Accomplishments FY-76:</u>						
. Completed the initial NADIN study and design						
. Issued the initial baseline NADIN Technical Data Package						
27. Source of Requirement ARD-1 ltr to AAT, 9/17/75			28. Blank			
29. Blank			30. Precedence Blank			
			31. Relevant Project Code			

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

I 064-221

RESEARCH AND TECHNOLOGY RESUME		NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMS. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE I 065-221		11. PRIOR NUMBER/CODE N/A			
12. TITLE AUTOMATED COMMUNICATIONS SYSTEM CONTROL DEVELOPMENT					
13. SCIENTIFIC OR TECH. AREA		15. START DATE	14. CRIT. COMPL. DATE	16. FUNDING AGENCY	
17. PRECISE KEYWORDS NA	18. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: ADDRESS: FAA/SRDS 2100 Second St. S. W. Washington, D. C. 20591 RESP. INDV.: C. J. Beam, ARD-223 TEL.: 202 - 426-0986		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS: PRINCIPAL: ASSOCIATE: TEL.: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. REVISIONS Technical Control, Communication Systems, Maintenance Concept					
24. <u>Technical Objective:</u> To provide hardware, software and techniques to permit the voice, radio, and data subsystems of the ATC communication system to interface with centralized technical control facilities to allow effective systemwide monitoring, control restoration, and maintenance activities.					
25. <u>Approach:</u> Studies will be conducted by SRDS, NAFEC, and TSC resources to assess the performance parameters and economic aspects of hardware/software/techniques for automatic status monitoring, fault trend detection, and control of existing and future ATC communication systems. Validation models will be developed where required. SRDS, with AAT and AAF, will study each interfacing subsystem to determine its relative restoration priority.					
26. <u>Milestones Scheduled for Accomplishment:</u> Study of improvements to current system control concept completed 12/77 Draft system control concept for U/Land comm system 6/78 PR for single thread validation models completed 12/78					
26. a. <u>Accomplishments for FY-76:</u> N/A					
27. Source of Requirement Draft E&D Program Plan, FAA-ED-06-1			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I-065-221

Form 1-76 is identical to
OD Form 1498 Rev.
NASA Form 1742

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYM. RD 1750-1						
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME A	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram						
11. CURRENT NUMBER/CODE I 066-221		12. PRIOR NUMBER/CODE 062-221-03									
13. TITLE COMMUNICATIONS SUSTAINING ENGINEERING											
14. SCIENTIFIC OR TECH. AREA		15. START DATE	16. CRIT. COMPL. DATE	17. FUNDING AGENCY							
18. PROJECTING. REYNOS NA	19. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. AMOUNT:										
20. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20590 RESP. INDIV.: N.R. Anderson, ARD-220 TEL.: 202-426-8500		21. PERFORMING ORGANIZATION NAME: FAA/NAFEC ADDRESS: INVESTIGATORS: Jack Muller, ANA-330 PRINCIPAL: ASSOCIATE: TEL.: 346-3808 TYPE:									
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA									
24. REVISIONS INTERFERENCE CANCELLATION SYSTEM (ICS) LOW VOLTAGE RECORDER, AUDIO AMPLITUDE SELECTOR UNIT											
<p>25. Technical Objective: To provide the operational services with enhancements and modifications to existing communications systems to improve operational capability, reduce cost or improve maintainability.</p> <p>26. Approach: NAFEC, with contract support, will carry out assigned communications sustaining engineering efforts. They will investigate problems, develop and test "fixes" for correcting problems, and prepare reports and/or technical data packages.</p> <p>27. Milestones Scheduled for Accomplishment:</p> <table border="0"> <tr> <td>Letter Report on Field Test and Evaluation of Interference Cancellation System</td> <td>4/77</td> </tr> <tr> <td>DC Recorder/AC Reproducer Technical Data Package completed</td> <td>1/77</td> </tr> <tr> <td>Audio Amplitude Selector Unit Technical Data Package completed</td> <td>2/78</td> </tr> </table> <p>28. a. Accomplishments FY-76:</p> <p>ICS equipment delivered</p>						Letter Report on Field Test and Evaluation of Interference Cancellation System	4/77	DC Recorder/AC Reproducer Technical Data Package completed	1/77	Audio Amplitude Selector Unit Technical Data Package completed	2/78
Letter Report on Field Test and Evaluation of Interference Cancellation System	4/77										
DC Recorder/AC Reproducer Technical Data Package completed	1/77										
Audio Amplitude Selector Unit Technical Data Package completed	2/78										
29. Source of Requirement 9550-1 AAF-76-9		30. Blank									
31. Blank		32. Precedence Blank									
		33. Relevant Project Code									

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 066-222		10b. PRIOR NUMBER/CODE Partial, 062-221, 064-221, 064-223			
11. TITLE: COMMUNICATIONS IMPROVEMENTS					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PREVIOUS REVISION NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AGENCY:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St. S.W. Washington, D.C. 20591 RESP. INDV.: Newel R. Anderson, ARD-220 TEL: 202-426-8500			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS RCAG MONITORING, EMERGENCY LOCATOR TRANSMITTER, RADAR REMOTING, WEATHER MESSAGE SWITCHING CENTER (WMSC)					
23. <u>Technical Objective:</u> To develop improvements in existing communications system elements or subsystems in order to support the ongoing operational communications systems by improving operational capability, reducing cost, or improving maintainability.					
24. <u>Approach:</u> SRDS, with contractor, NAFEC and other FAA support will: develop/specify RCAG monitoring equipments; develop sensor specifications and procedures for aircraft emergency locator transmitter (ELT); upgrade the computerized WMSC and network as required; modernize and improve performance specifications for microwave links (RML).					
26. <u>Milestones Scheduled for Accomplishment:</u>					
NAFEC RCAG monitor sensors Phase I study completed			8/76		
ELT sensor specification and procedures completed			11/76		
WMSC multipoint procedures ready for implementation			11/76		
Final RML project report completed			1/77		
26a. <u>Accomplishments FY-76:</u>					
RCAG monitoring sensor investigation initiated					
ELT contract DOT-FA76WA-3842 awarded					
27. Source of Requirement 95508: AAT-300-17, AAF-74-5, AFS-106-75-149			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

Items 1 to 26 identical to
DD Form 147A ex. 1
NASA Form 1127

I-066-222

07 APPROACH AND LANDING
SYSTEMS

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE II 071-312		10b. PRIOR NUMBER/CODE 430-209			
11. TITLE: VISUAL GUIDANCE SUSTAINING ENGINEERING					
12. SCIENTIFIC OR TECH. AREA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA a. TYPE: b. DATE: c. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St. S.W. Wash. D.C. 20591 RESP. INDIV.: W.C. Fisher, ARD-421 TEL: 426-8454		19. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: Atlantic City, N. J. 08405 INVESTIGATOR: Leon Reamer, ANA-440 PRINCIPAL: ASSOCIATE: TEL: 8-346-3712 TYPE:			
20. TECHNOLOGY UTILIZATION NA		21. COORDINATION NA			
22. KEYWORDS Lighting Equipment, Marker Lights, Visibility, Visual Signals					
23. Technical Objective: To provide technical effort in response to requests for R&D or as indicated by analysis to sustain an acceptable performance level of visual aids.					
24. Approach: SRDS with NAFEC and contractor support will (a) investigate and improve systems and equipment in order to provide safer, more reliable and lower cost installations, and (2) provide critical short term engineering assistance to operating services.					
Milestones scheduled for Accomplishment:					
Report on testing of fiberglass approach light supports				3/77	
Report on lime green runway marking				8/77	
Baffle for MALSR sequence flashing light				9/77	
25. Specification data on lighting and marking for turf runways				6/78	
Night only VASI spec data for General Aviation airports				8/78	
End-Item Product Accomplishments					
Consolidated final report on tests accomplished (1971-1975) and reported by letter					
Report on Runway Lights for Non-Precision Instrument Approaches					
27. Source of Requirement: 9550-1, AAS-502-76-1, 28AFS-200-25-1, AAS-502-76-3, AAS-502-76-2, Letter Request from State of New Jersey, FAA-ED-07-3					
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

II 071-312

Items 1 to 26 identical to
DD Form 1750-1
NASA Form 1122

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS 10 17 12 1
5. DATE OF RESUME 1-76	6. KIND OF RESUME D	7. SECURITY PPT U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
100. CURRENT NUMBER/CODE II 071-313		101. PRIOR NUMBER/CODE 320-101			
11. TITLE ILS Sustaining Engineering					
12. SCIENTIFIC OR TECH. AREA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
16. PROCEDURE METHOD NA	17. CONTRACT/GRAANT A. DATE: NA				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St. S.W. Wash. D.C. 20590		19. PERFORMING ORGANIZATION NAME: ADDRESS:			
20. INDIV. H.H. Butts, ARD-741 TEL: (202) 426-8605		21. INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA			
24. KEYWORDS Instruments Landing System, ILS, Glide Slope, Localizer, Cat I-III					
25. Technical Objective: Resolve special field problems so as to sustain an acceptance perf. level of the Cat I-III ILS; provide technical data req'd in the dev. and promulgation of nat'l and int'l stds and reqs.					
26. Approach: SRDS w/NAFEC Reg. & contractual support will investigate, analyze tech. probs. that affect the overall operational capability of the ILS; dev. & test "fixes" for correcting equip., mon., or siting probs; prepare reports & specs. req. in the issuance & rev. of Cat I-III system stds.					
Milestones Scheduled for Accomplishment: Cont. rapid response to spec. fld. probs. Operate scale model ILS facility at NAFEC. 10/77 Cont. NBS certification/calibration of ILS Mod. equipment and update/maintain Primary Standard. Gather GS snow data at fld. sites. 10/77 Eval. SS ILS at NAFEC for lighting/transient "fixes" & maint. move Install & assist in com. mod. WG GS at Boston for Cat II. 10/76					
Accomplishments-FY-76: Completed first phase of GS environmental statistical analysis. Tested R&D monitor mods. for snow effects at several northern GS sites. Initial evaluation of auto RTT. GS environmental data collection from EA, GL & RM Regions. NBS primary ILS Mod. standard available.					
27. Name of Requirement FAA-ED-07-3		28. Name: Blank			
29. Blank		30. Precedence: Blank			
		31. Relevant Project Code			
II 071-313					

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORT IDENT. RD 172-1
5. DATE OF RESUME 1-76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
11. CURRENT NUMBER/CODE II 072-321			12. PRIOR NUMBER/CODE 320-101		
13. TITLE: ILS Improvements					
14. SCIENTIFIC OR TECH. AREA			15. START DATE	16. CHIT. COMPL. DATE	17. FUNDING AGENCY
18. PROCUR. METHOD NA	19. CONTRACT/GRANT A. NUMBER: NA B. TYPE:		20. DATE:		
21. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St. S.W. Wash. D.C. 20590 RESP. INDIV.: H.H. Butts, ARD-741 TEL: (202) 426-8605			22. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
23. TECHNOLOGY UTILIZATION NA			24. COORDINATION NA		
25. KEYWORDS Instrument Landing System Glide Slope Localizer Cat I-III					
26. Technical Objective: To develop equip., tech. & stand. to insure Cat I-III performance of the conventional ILS under all conditions of siting & weather					
Approach: In-house SRDS/NAFEC/TSC effort w/contractural support will: develop, test & evaluate new ILS systems, antennas & monitors to operate under severe siting & weather conditions; provide math & physical modeling & simulation studies to predict sys. performance under typical airport siting environments.					
Milestones Scheduled for Accomplishment: Dev. Far Fld. Loc & GS Monitors, 1/78 - Dev. Boradside, End Fire & Opt. Image Arrays, 4/79 - Dev. large aperture TW/slotted cable and squinted backcourse localizer, 12/77 - Update/operate Scal Model ILS, 1/78 - Validate & Exercise Math Models. Use Model to Invest. FF Mon., 6/77 - Dev. doppler/ILS distance technique, 4/78 - Resolve SS ILS lightning/transient problems, 10/76 - Dev. automated maintenance data and control system, 6/78 - Dev. Improved remote ILS Status & Control Syste, 6/79					
Accomplishment for FY-76 SS ILS Lightning/transient protection system implemented. Complete small/med slotted cable loc. arrays. Installed end-fire GS at NAFEC for environmental testing. Preliminary ILS math model available. Installed 14/6 combined loc. array at LaGuardia. Loc. math model in operation NAFEC/AAF. Completed precision ILS calibrator deve. Specs. ILS TW antenna open/short detector. ILS scale model installed at NAFEC. Interim report on ILS doppler tec. Installed/tested frangible GS masts & antenna loops at NAFEC.					
27. Source of Requirement FAA-ED-07-3			28. Blank		
29. Blank			30. Precedence Blank		
31. Relevant Project Code					
II 072-321					

From 1 to 20 Central to
DD Form 100 and
DATE: 1-1-76

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10A. CURRENT NUMBER/CODE II 072-324			10B. PRIOR NUMBER/CODE 430-301		
11. TITLE: VISUAL GUIDANCE IMPROVEMENTS					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: ADDRESS: FAA 2100 2nd St. S.W. Wash. D.C. 20590 RESP. INDIV.: W.C. Fisher, ARD-421 TEL: (202) 426-8454			20. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: Atlantic City, N. J. 08405 INVESTIGATORS: PRINCIPAL: Leon Reamer, ANA-440 ASSOCIATE: TEL: 8-346-3712 TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Lighting Equipment Frangible Structures Airport Beacons, Visibility					
24. Technical Objective: To develop new and improved lighting systems for use under all weather conditions (except Cat III) to make safer, more reliable or less costly systems. Approach: SRDS w/NAFEC & contract support will develop and redesign systems which are safer, more reliable & less costly including a) frangible ALS, b) Displaced threshold ALS c) Improved circling guidance d) control equipment e) Taxiway & runway lighting f) Visual vertical guidance, g) New light sources, h) IFR marking, i) Lighting and marking for VFR airports. Milestones Scheduled for Accomplishments: Contract for Low Visibility vertical visual guidance investigation 4/77 Data for spec. on ALSF-1 Threshold improvement 12/76 Wire Obstruction lighting and marking for airport approaches 4/78 Data for marking and lighting turf runways 5/78 Improved VASI design and configuration 8/78 End Item Product Accomplishments Report on Spatial Disorientation issued (Lake Front Airport) Report on improved runway edge lights Mimic Panel Study completed 27. Source of Requirement in house, FS-400-70-2A, ED-07-04, AFS-1 ltr. 6/16/75 AAS-240 ltr 5/15/75, AFS-200-75-2, AAS letter request 1/76					
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

II 072-324

Form 1 to 10 identical to
DD Form 1078 and
NASA Form 1142

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE II 073-323			10A. PRIOR NUMBER/CODE 430-302		
11. TITLE: CATEGORY III VISUAL GUIDANCE					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AMOUNT:				
18. GOV'T LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St. S.W. Wash. D.C. 20590 RESP. INDIV.: W.C. Fisher, ARD-421 TEL: (202) 426-8454			20. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: Atlantic City, N.J. 08405 INVESTIGATORS PRINCIPAL: Leon Reamer, ANA-440 ASSOCIATE: TEL: 8-346-3712 TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Lighting Equipment, Marker Lights, Visibility, Flight Test Data					
24. Technical Objective: To develop improved lighting systems for visual guidance to aircraft during landing, rollout and taxiing in Category III weather. Approach: SRDS with NAFEC and contractor support will develop improvements to Category III lighting system to provide better guidance for large aircraft and to meet ICAO requirements. The necessary additions and changes to the Category III lighting system will be determined. In order to allow testing of the system in good weather and to provide expeditious results, the low visibility cockpit fog simulator will be used when conditions are suitable. Taxi intersection guidance lighting will be developed. Improved flight test data by use of Video Tape recording and adaption of the cockpit fog simulator will be developed. Milestones Scheduled for Accomplishment: Category III Centerline Lighting System Criteria 2/77 Modification of Cockpit Fog Simulator 11/77 Video "Tape Recording for Flight testing 12/77 End-Item Product Accomplishments None					
27. Source of Requirement FAA-ED-07-3			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

II 073-323

Trans 1 to 26 identical to
DD Form 1490 and
NASA Form 1122

RESEARCH AND TECHNOLOGY RESUME		NA	NA	NA	REPORTS IS (ST. 100)
1. DATE OF RESUME	2. KIND OF RESUME	3. SECURITY	4. GRADING	5. RELEASE LIMITATION	6. LEVEL OF RESUME
76	D	U	NA	NL	Subprogram
100. CURRENT NUMBER/CODE			100. PRIOR NUMBER/CODE		
II 075-725			NA		
11. TITLE:					
Microwave Landing System (MLS)					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
					FAA
16. PROCEDURE METHOD	17. CONTRACT/GRANT	18. DATE			
NA	NA				
19. COMPT. LAB/INSTALLATION ACTIVITY			20. PERFORMING ORGANIZATION		
NAME: FAA/SRDS			NAME:		
ADDRESS: 2100 2nd St. S.W.			ADDRESS:		
Wash. D.C. 20590					
RESP. INDIV.: Frank L. Frisbie, ARD-700			INVESTIGATORS		
TEL: (202) 426-3633			PRINCIPAL:		
			ASSOCIATE:		
21. TECHNOLOGY UTILIZATION			22. COORDINATION		
NA			NA		
23. SYNOPSIS					
Microwave/Scanning Beam/All Weather Landing Guidance System					
24. Technical Objective: Develop a Microwave Landing System (MLS) having a family of configurations that will meet the range of operational requirements for all aircraft, weather & environmental conditions.					
Approach: SRDS and NAFEC in conjunction with DOD and NASA and with contractor support will in accordance with the National Plan for development of the MLS, develop a MLS in a three phase program. Phase I, Technical Analysis and contract definition, followed by Phase II, Feasibility Demonstration, and Phase III Prototype Systems Development test and evaluation resulting in a set of production specifications. Concurrently, investigations and studies involving system requirements, component development will be conducted independently in support of total development effort.					
Milestones Scheduled for Accomplishment					
25. ICAO/AWOP Selection of International System					
System Draft Specification Available				2/77	3/77
Accomplished FY-76					
Phase III Prototype Letter Contracts					
US Candidate System submitted to ICAO					
Phase III development contracts definitized					
First prototype system delivered					
26. History of Development National Plan for the Development of a MLS					
27. REFERENCES					
28. RESEARCH PROJECT CODE					

II 075-725

Form 1-77 (Rev. 1-77)
(100 Form 1-77)
(100 Form 1-77)

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram		
100. CURRENT NUMBER/CODE II 076-311				10A. PRIOR NUMBER/CODE 076-311			
11. TITLE: Approach and Landing Altimetry							
12. SCIENTIFIC OR TECH. AREA				13. START DATE 1/71	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
16. PROCURE METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE:		18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St. S.W. Wash. D.C. 20590 RESP. INDIV: John F. Hendrickson, ARD-743 TEL: (202) 426-8605				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St. S.W. Wash. D.C. 20590 RESP. INDIV: John F. Hendrickson, ARD-743 TEL: (202) 426-8605				20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA				22. COORDINATION NA			
23. KEY WORDS Altimetry, Approach and Landing, Flight Safety							
24. Technical Objective: To perform studies and develop systems to eliminate errors in altitude information as a contributing cause of approach and landing accidents.							
25. Approach: Using contractor support, operational systems and improved instrumentation will be developed to eliminate or reduce the probability of occurrence of errors in altitude information as utilized by the flight crew. Improved cockpit displays and independent altitude monitoring systems will be investigated.							
26. Milestones Scheduled for Accomplishment: Report - Collation and Analysis of Alerting Systems Data Definition and assessment of candidate alerting subsystem concepts contract award Definition and demonstration of a standardized alerting system Accomplishments FY-76: Alerting systems Data Analysis Contract Award							
27. Source of Requirement FAA-ED-07-3				28. Blank			
29. Blank				30. Precedence Blank			
				31. Relevant Project Code			

II 076-311

Forms 1 to 28 identical to
16D Form 1478-100
NAVJAG Form 11-2

08 AIRPORT/AIRSIDE

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 081-431			10b. PRIOR NUMBER/CODE NA		
11. TITLE: AIRPORT SAFETY SUPPORT SYSTEM					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S. W. Washington, D.C. 20590 RESP. INDIV.: Herman D'Aulerio, ARD-420 TEL: (202) 426-3687			19. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: Atlantic City, N.J. 08405 INVESTIGATOR: G. B. Geyer, ANA-420 PRINCIPAL ASSOCIATE: TEL: 8-346-2645 TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS: Airport Safety, Firefighting Equipment, Agents and Techniques.					
23. Technical Objectives: Develop aircraft ground firefighting equipment and techniques to provide protection following a crash landing to insure survival of the crew and passengers.					
Approach: Provide projects, studies, selections, procurements and test and evaluate systems necessary to accomplish the objectives. NAFEC/IA/Contract Support.					
Milestones Scheduled for Accomplishment:					
. Final Report, Airport Crash Fire Rescue System Improvement Needs 6/77					
. Final Report on New Firefighting Agents & Techniques 6/80					
Accomplishments for FY-76					
24. Final Report "State-of-the-Art Review" (Draft)					
27. Source of Requirement AAS-700-73-1			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I 081-431

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1A	2 GOVT ACCESSION	3 AGENCY ACCESSION	REPORTS IDENT. SYMB.
4 DATE OF RESUME	5 KIND OF RESUME	6 SECURITY	7 REGRADING	8 RELEASE LIMITATION	9 LEVEL OF RESUME
10/1/76	D	U	NA	NL	Subprogram
10A CURRENT NUMBER/CODE		10B PRIOR NUMBER/CODE			
I 081-461		081-261			
11. TITLE:					
FOG DISPERSAL					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD			17. CONTRACT/GRANT		
NA			NA		
18. GOVT LAB/INSTALLATION/ACTIVITY			19. PERFORMING ORGANIZATION		
NAME: FAA/SRDS			NAME:		
ADDRESS: 2100 Second St., S.W.			ADDRESS:		
Washington, D.C. 20591			INVESTIGATORS		
RESP. INDIV.: Frank Melewicz, ARD-451			PRINCIPAL:		
TEL: (202) 426-8427			ASSOCIATE:		
21. TECHNOLOGY UTILIZATION			22. COORDINATION		
NA			NA		
23. KEYWORDS					
Meteorology, Weather Modification, Environmental Quality, Warm Fog					
24. Technical Objective: Increase airport capacity and safety by fostering the development of operational fog dispersal systems.					
25. Approach: This effort will identify a ground-based fog dispersal system, for use at U.S. civil airports, which is cost-effective and meets environmental quality standards. Development, design, test and evaluation of a thermal fog dispersal system for civilian airports will be made in a joint development program with the USAF.*					
26. *Final Report on Combuster Development including technical data complete 12/77					
*System tests at Otis AFB, Mass. & Operational Spec complete 12/78					
Accomplishments					
Final in-house report published "Ground-Based Warm Fog Dispersal Systems - Technique Selection and Feasibility Determination with Cost Estimates."					
27. Source of Requirement			28.		
Mission-oriented			Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

*Joint program with USAF provided funds are available.

I 081-461

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY RPT U	7. REGARDING NA	8. RELEASE LIMITATION NA	9. LEVEL OF RESUME subprogram
10A. CURRENT NUMBER/CODE I 082-420		10B. PRIOR NUMBER/CODE 450-702, 082-120			
11. TITLE: AIRPORT PAVEMENT					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
16. PROCURE METHOD NA	17. CONTRACT/GRANT a. DATE: b. NUMBER: c. TYPE: d. AMOUNT:	18. RESOURCES EST. PRIOR FY CURRENT FY	19. PROFESSIONAL MAN-YEARS	20. FUNDS (in thousands)	
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St., S.W. Washington, D.C. 20591 RESP. INDIV.: Fred Horn, ARD-430 TEL: 426-9396		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS: Airport pavement design and construction, nondestructive testing, flexible and rigid pavement.					
24. Technical Objective: Provide criteria for airport design and construction using new techniques and materials. Provide quick-response to research needs generated by ADAP.					
25. Approach: Negotiate Interagency Agreements and contracts with industry as appropriate. Jointly funded investigations with DOD and other DOT agencies will be implemented. NAFEC will provide field test environment.					
26. Milestones Scheduled for Accomplishment FY-77: The following reports:					
Soil Moduli		11/76	Roughness Criteria		12/76
Light Aircraft Criteria		12/76	Roughness Repair Plan		12/76
Improved Drainage Criteria		12/76	Frost Predictive Techniques		2/77
Roughness Simulation Code		12/76	Nighttime Construction-Asphalt Pave.		3/77
27. Accomplishments for FY-76: The following reports were issued:					
Aircraft Dynamic Loads, I		Shrinkage Compensating Cement.			
28. Nondestructive Testing, I, & II					
Statistical Quality Control.					
Porous Friction Course.					
Expansive Soils.					
Study of Dynamic Stiffness and Application to NDT.					
Design Procedures for Flexible Pavements					
State-of-the-Art in Predicting Pavement Reliability from Input Variability.					
State-of-the-Art for prediction of Pavement Response.					
State-of-the-Art in Variability of Material Properties for Airport Pavement Systems.					
27. Source of Requirement R&D Program Plan FAA-ED-08-2 & 9550's		28.			
29.		30. Precedence			
		31. Relevant Project Code			

I 082-420

Trans 1 to 20 (continued)
DD Form 149R and
MAY 68 1137

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. TIME RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 082-421			10b. PRIOR NUMBER/CODE 430-003;160-201;160-205;082-121;082-122		
11. TITLE: AIRPORT CONFIGURATION					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd St., S.W. Washington, D.C. 20591 RESP. INDIV.: Max Coggins, ARD-410 TEL: (202) 426-3685			20. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Airport, Airside, Increasing Capacity					
24. Technical Objective: Develop improved analytical tools, handbooks, techniques, procedures and designs for increasing capacity and reducing delay of the airport airside. Apply capacity/delay measuring techniques to identification of R&D requirements and assessment of benefit potential for development items.					
25. Approach: In-house SRDS/NAFEC effort with contract support to develop a coordinated airside increased capacity program including studies, simulations, design guidance, prototype development and field demonstration and evaluation.					
25B. Milestones Scheduled for Accomplishment:					
Model and Handbook for Capacity Determination Complete				10/75	
Fast Time Airport Simulation Model Complete (with documentation)				11/75	
High-Speed Exit and Entrance Taxiways Analysis Complete				12/75	
Design Criteria for High-Speed Taxiways Completed				3/77	
VAS Evaluation of Capacity Impact				2/77	
Model User Manual				11/76	
26. Accomplishments - FY-76:					
Airport Capacity and Delay Models Delivered					
Annual Delay Model Delivered					
Hourly Delay Model Delivered					
27. Source of Requirement: FAAR 5090.2; ATCAC Report 12/69; Incr. Cap. Report 5/70			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I 082-421

Items 1 to 26 identical to
RD Form 1a7B and
NASA Form 112b

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION IIA	REPORTS IDENT. SYM. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 082-431		10b. PRIOR NUMBER/CODE			
11. TITLE: RUNWAY SURFACE TRACTION					
12. SCIENTIFIC OR TECH. AREA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT a. NUMBER NA c. TYPE d. AMOUNT				
18. GOVT LAB/INSTITUTION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St., S.W. Washington, D.C. 20591 RESP. INDV.: Herman D'Aulerio ARD-420 TEL: 426-3687		20. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: Atlantic City, N.J. 08405 INVESTIGATOR: Hector DAiutolo, ANA-440 PRINCIPAL: ASSOCIATE: TEL: 8-346-2283 TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Runway - Landing Gear - Loads - Hydroplaning Launch vehicle, Slab specimens Groove Shape - Configuration					
24. Technical Objective: Develop improved runway groove shape and configuration which will be cost-effective. Develop cost-effective method of installing grooves in existing and new runways.					
25. Approach: NAFEC to conduct and monitor test program using NATF, Lakehurst, facility. Fabricate and Instrument the dynamometer and install on test vehicle. Provide slab specimen material and groove configurations to be tested. Monitor all test. Determine most cost effective configuration and method installation on new and existing pavements.					
Milestones Scheduled for Accomplishment:					
Tests Complete			12/76		
Final Report			7/77		
26. Accomplishments FY-76					
Tests and Evaluations Initiated					
27. Source of Requirement 9550 AS-72-580-1		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I 082-431

Items 1 to 26 referred to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		NA	GOVT ACCESSION NA	AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
1. DATE OF RESUME 10/1/76	2. KIND OF RESUME D	3. SECURITY U	4. REGISTRATION NA	5. RELEASE LIMITATION NL	6. LEVEL OF RESUME Subprogram
103. CURRENT NUMBER/CODE I 083-401			104. PRIOR NUMBER/CODE 083-601		
11. TITLE: AIRPORT SURFACE TRAFFIC CONTROL					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St., S.W. Washington, D.C. 20591 RESP. INDIV.: Herman D'Aulerio, ARD-420 TEL: (202) 426-3687			20. PERFORMING ORGANIZATION NAME: TSC ADDRESS: Boston, Mass. INVESTIGATORS: John W. O'Grady, TSC-413 PRINCIPAL ASSOCIATE: TEL: 8-837-2026 TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Radar, Beacon Trilateration, Airport Surface Detection					
24. Technical Objective: Develop an Airport Surface Traffic Control System, to increase surface traffic handling capacity, minimize surface traffic delays and provide all weather control and guidance and prepare specifications for hand off to the Operating Services.					
25. Approach: Consists of two types of tasks: (1) Short Term Products with little development risk and for which the requirement can be defined at this time and (2) Tasks which require laying the ground work for longer term products through parallel Systems Definition and Supporting technology activities.					
Milestones Scheduled for Accomplishment:					
ASDE-3 Prototype, System Design Operational System Description				9/78	
Decision on Surveillance System for TAGS				6/81	
Final Operational TAGS System Technical Data Package				6/85	
Accomplishments FY-76:					
Installation of improved ASDE-2 and new ASDE Bright Display at ORD, JFK, and SFO					
27. Source of Requirement ED-08-1			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I 083-401

Form I to 25 identical to
DD Form 1470 and
NASA Comp 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMB. RD 1750-1												
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram												
11. CURRENT NUMBER/CODE I 084-451		12. PRIOR NUMBER/CODE 214-531															
13. TITLE: WAKE VORTEX AVOIDANCE SYSTEM																	
14. SCIENTIFIC OR TECH. AREA			15. START DATE Continuing	16. CRIT. COMPL. DATE N/A	17. FUNDING AGENCY FAA												
18. PROCURE. METHOD NA	19. CONTRACT/GRANT A. NUMBER: NA C. TYPE: A. AGENCY:																
20. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20590			21. PERFORMING ORGANIZATION NAME: Transportation Systems Center ADDRESS: Kendall Square Cambridge, Mass. 02142 INVESTIGATOR: Mr. William Wood PRINCIPAL ASSOCIATE: TEL: 837-2181 (FTS) TYPE:														
22. TECHNOLOGY UTILIZATION NA			23. COORDINATION NA														
24. KEYWORDS Vortices, Turbulence, Prediction, Dissipation, Anemometers, Acoustics, Sensors Hazard, Vortex Behavior, Laser Velocimeter, Airport Capacity																	
25. Technical Objective: Minimize or eliminate aircraft wake vortices to allow increased runway capacity without degrading current safety standards. Approach: In joint coordination with Transportation Systems Center, NAFEC testing facilities, and NASA, a systems engineering and design of an operational system to detect/predict the presence of aircraft generated wake vortices, evaluate the extent of hazard existence and provide avoidance guidance as an integral part of the air traffic system will be developed and evaluated for NAS implementation. A meteorological vortex advisory system has been developed. A fully automated wake vortex avoidance system is still under development. Contractual support is being utilized to supplement in-house capabilities. Milestones Scheduled for Accomplishment: <table border="0"> <tr> <td>Vortex Descent Analysis - Final Report</td> <td>11/76</td> </tr> <tr> <td>Technical Data Package for VAS</td> <td>1/77</td> </tr> <tr> <td>Reports on O'Hare VAS tests</td> <td>3/77</td> </tr> <tr> <td>Toronto Data Collection Report</td> <td>3/77</td> </tr> <tr> <td>Refined Predictive Model for WVAS Developed</td> <td>6/77</td> </tr> <tr> <td>Operational Suitability Testing of O'Hare VAS Complete and Final Report issued</td> <td>6/77</td> </tr> </table> Accomplishments for FY-76 & 76T <ul style="list-style-type: none"> Heathrow Data Analysis Completed and Final Report Published Mobile Vortex Facility Completed Toronto Vortex Test Facility Established Vortex Advisory System - O'Hare 						Vortex Descent Analysis - Final Report	11/76	Technical Data Package for VAS	1/77	Reports on O'Hare VAS tests	3/77	Toronto Data Collection Report	3/77	Refined Predictive Model for WVAS Developed	6/77	Operational Suitability Testing of O'Hare VAS Complete and Final Report issued	6/77
Vortex Descent Analysis - Final Report	11/76																
Technical Data Package for VAS	1/77																
Reports on O'Hare VAS tests	3/77																
Toronto Data Collection Report	3/77																
Refined Predictive Model for WVAS Developed	6/77																
Operational Suitability Testing of O'Hare VAS Complete and Final Report issued	6/77																
27. Source of Requirement FAA-ED-21-1			28. Blank														
29. Blank			30. Precedence Blank														
			31. Relevant Project Code														

I 084-451

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

09 AIRPORT/LANDSIDE
(Transferred to OSEM)

10 OCEANIC

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. NO. RD 1710.1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 102-150		10b. PRIOR NUMBER/CODE None			
11. TITLE: Oceanic Automation					
12. SCIENTIFIC OR TECH. AREA N/A		13. START DATE 10/76		14. CRIT. COMPL. DATE	15. FUNDING AGENCY I
16. PROCURE. METHOD NA	17. CONTRACT/ORD. NO. NA		18. DATE		
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S. W. Washington, D. C. 20591		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Advanced Oceanic Automation, ATC, Engineering Requirement, System Software/Hardware					
24. <u>Technical Objective:</u> Provide the Air-Traffic Controller with operational features to match control requirements. These features include among others, extrapolation of aircraft flight plan positions, computed aircraft ground speed, plotting flight plan routes, presentation of aircraft position reports, transfer of control, alert warning for aircraft overdue at reporting points, and planned conflict avoidance. Prepare Engineering Requirements and Operational Computer Program Descriptions for hardware, software development and the total system implementation. Provide interface control documents for IAS, 1130/System 7 ARINC, International Flight Service Stations, ADC and other interfaces. Prepare for future functional enhancements maintaining close coordination with AEROSAT Program.					
25. <u>Approach:</u> In-house SRDS/NAFEC personnel and contract support will be used to develop software and hardware Engineering Requirements, Operational Computer Program Descriptions, interface control documents, console configuration and other technical reference documents to accomplish the above objective. Procure first article hardware.					
26. <u>Milestones Scheduled for Accomplishment:</u> Engineering Requirement Revisions Complete (4 months after program restart) PR/RFP Prepared (8 months after program restart)					
26.A <u>Accomplishments for FY-76:</u> None					
27. Source of Requirement FAA-ED-10-1		28.			
29.		30. Precedence			
		31. Relevant Project Code			

I 102-150

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

**II ATC SYSTEMS COMMAND
CENTER AUTOMATION**

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1						
4. DATE OF RESUME 8/11/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram						
10. CURRENT NUMBER/CODE I 111-102			10A. PRIOR NUMBER/CODE I 111-150								
11. TITLE: Central Flow Control											
12. SCIENTIFIC OR TECH. AREA			13. START DATE 10/76	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY FAA						
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:										
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd St., S.W. Washington, D.C. 20591			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:								
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA								
23. KEYWORDS Flow Control, Traffic Prediction, Energy Conservation, System Command Center											
<p>24. <u>Technical Objective</u>: Provide automated support to the Central Flow Control's System Command Center (SCC) to (a) improve the SCC's capability to match air traffic flow to the traffic handling capacities of the en route and terminal facilities, (b) reduce "in-flight" delays by assigning ground delays thereby reducing fuel consumption, and (c) enhance the safety of air traffic in congested airspace by providing an automated status monitoring of selected en route fixes thereby allowing overloads to be predicted so that corrective action may be taken.</p> <p>25. <u>Approach</u>: An FAA in-house design team will produce a computer program functional specification (CPFS). This CPFS will then be supplied to an implementation contractor who will code the system using the 9020A in the SSF at NAFEC. AAF will procure and install the necessary hardware to configure a 9020A processing facility at the JAX ARTCC. When the JAX facility becomes available for use, the implementation contractor will move to the site and complete the integration testing work there.</p> <p>26. <u>Milestones Scheduled for Accomplishment</u>:</p> <table border="0"> <tr> <td>1. Award contract for Software Implementation</td> <td>Feb. 1977</td> </tr> <tr> <td>2. Computing Facility available at JAX</td> <td>Sep. 1977</td> </tr> <tr> <td>3. Basic System Operational</td> <td>Dec. 1978</td> </tr> </table> <p>26A. <u>Accomplishments for FY-76</u>: A Definitized requirement was received from AAT. This requirement was analyzed in depth by an FAA design team and a computer program functional specification was produced.</p>						1. Award contract for Software Implementation	Feb. 1977	2. Computing Facility available at JAX	Sep. 1977	3. Basic System Operational	Dec. 1978
1. Award contract for Software Implementation	Feb. 1977										
2. Computing Facility available at JAX	Sep. 1977										
3. Basic System Operational	Dec. 1978										
27. Source of Requirement AAT ltr subj: New Definition of ATCSCC Auto. Rqmts, 12/24/75											
29.		30. Precedence									
		31. Relevant Project Code									

I 111-102

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

12 ENROUTE CONTROL

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. S. M. RD 1750-1								
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram								
10a. CURRENT NUMBER/CODE I 122-109		10b. PRIOR NUMBER/CODE N/A											
11. TITLE: SOFTWARE TECHNICAL SUPPORT													
12. SCIENTIFIC OR TECH. AREA N/A		13. START DATE 10/76	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA									
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AMOUNT:												
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Michael Deliman, ARD-112 TEL: (202) 426-9372		20. PERFORMING ORGANIZATION NAME: FAA/NAFEC ADDRESS: Atlantic City, N.J. INVESTIGATORS PRINCIPAL: Harry Haugan, ARD-140 ASSOCIATE: TEL: 8-346-3011 TYPE:											
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA											
23. KEYWORDS Software, Simulation Models, design studies													
24. <u>Technical Objective:</u> To provide software technical support in areas of NAS en route operational and operational support development programming on those projects assigned to ARD-140 which are contained in the approved technical plan.													
25. <u>Approach:</u> Various software projects will be assigned to this organization for developmental activity. End products will be a software production specification or a design study. SRDS in-house, with contractor support, will be used to accomplish the objective.													
26. <u>Milestones:</u>													
<table border="0"> <tr> <td>1. Update/maintain ECSS simulation and simscript</td> <td>3/77</td> </tr> <tr> <td>2. Update/maintain en route CCC simulation model to 3d2.3</td> <td>4/77</td> </tr> <tr> <td>3. Update/maintain en route systems simulation model to 3d2.3</td> <td>4/77</td> </tr> <tr> <td>4. Post-1982 RNAV Design Study.</td> <td>6/77</td> </tr> </table>						1. Update/maintain ECSS simulation and simscript	3/77	2. Update/maintain en route CCC simulation model to 3d2.3	4/77	3. Update/maintain en route systems simulation model to 3d2.3	4/77	4. Post-1982 RNAV Design Study.	6/77
1. Update/maintain ECSS simulation and simscript	3/77												
2. Update/maintain en route CCC simulation model to 3d2.3	4/77												
3. Update/maintain en route systems simulation model to 3d2.3	4/77												
4. Post-1982 RNAV Design Study.	6/77												
26A. <u>Accomplishments for FY-76</u>													
En route minimum safe altitude study for non-approach control airports Tracking Improvement Study and Draft Report • NAS CCC Compute Performance Evaluation													
27. Source of Requirement FAA-ED-12-2 A		28.											
29.		30. Precedence											
		31. Relevant Project Code											

I-122-109

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY SPT II WR	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 122-110		10b. PRIOR NUMBER/CODE NA			
11. TITLE: PROGRAM PLANNING & SYSTEM ENGINEERING					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE 10/76	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY FAA I	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: NA	18. DATE: c. DATE: d. AMOUNT:	19. RESOURCES EST. PRIOR FY CURRENT FY	20. PROFESSIONAL MAN-YEARS	21. FUNDS (in thousands)
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd Street, SW Washington, DC 20591			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
19. RESP. INDIV.: Robert P. Pringle, ARD-110 TEL: (202) 426-1394			22. COORDINATION NA		
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS System Improvements, Analysis, Concept Formulation, Design Development					
24. Technical Objective: To formulate design concepts, perform system planning and accomplish system engineering activities to ensure that overall en route development efforts result in a viable upgraded third generation system design which provides sufficient capacity, improved performance and increased productivity.					
25. Approach: SRDS in-house, with MITRE Corporation support, will provide: (1) system and subsystem analyses, program formulation and planning, design definition, and experimentation/validation testing of the functional and engineering design; (2) identification of interface requirements with other development projects and sub-systems; and packaging and specification of implementable designs.					
26. Milestones Schedule:					
IPC Phase II Interface Design Specification				12/76	
Engineering Requirements Electronic Tabular Display (ETABS)				12/76	
Initial Design Definition Conflict Resolution				2/77	
Initial Design Specification En Route Metering				3/77	
Specification (NCP & CPFS) Conflict Alert Enhancements				4/77	
26A Accomplishment for FY-76: Pre-1982 RNAV impact analysis report, technical data package for 9020A Storage Element Expansion, DABS/IPC Phase I integration test plan, initial design specification flight plan probe, specifications (NCP & CPFS) low altitude conflict alert, system testing & DR&A plan for controller productivity measurements.					
27. Source of Requirements: FAA-ED-12-2A			28.		
29.			30. Precedence		
			31. Relevant Project Code		
			N/A		

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. PD 1710-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 122-111		10b. PRIOR NUMBER/CODE N/A			
11. TITLE: NAS Stage A Improvements (Model 3)					
12. SCIENTIFIC OR TECH. AREA N/A		13. START DATE 10/76	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA	
16. PROCURE. METHOD NA	17. CONTRACT/QUANT a. NUMBER: NA c. TYPE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St. S.W. Washington, D.C. 20591		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
19. RESP. INDIV.: Parker Harris, ARD-111 TEL: (202) 426-9372					
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Develop, Display, Recording, Beacon Processing, Target Detection					
24. Technical Objective: To develop for implementation software techniques and hardware improvements to achieve better system reliability, logging, and record keeping of operational data, and for improving the processing and interpretation of radar data for the surveillance functions.					
25. Approach: A breadboard radar display (PVD) record and playback system will be developed and evaluated by both NAFEC and a contractor under SRDS management direction. A contractor designed system will be evaluated and an analysis of both systems will be completed. CCC software which will eliminate false beacon reports will be developed and evaluated.					
26. Milestones Scheduled for Accomplishment:					
Begin evaluation of CCC Software change				11/76	
Delivery of Beacon Improvement Tech Data Package				1/77	
Display Recording comparative evaluation completed				3/77	
Tech Data Package CCC Software Beacon False report fix				3/77	
Final Report for prototype display recording evaluation				8/77	
27. Accomplishment for FY-76:					
Delivered technical data package for ACE modification to Common Digitizer (CD).					
Delivered technical data package for Automatic Lead Edge select feature on CD.					
Completed evaluation of moving Target Extractor and Rank Order Quantizer.					
Delivered interim report for display recording.					
27. Source of Requirement		9550 FAA-ED-12-2A, AAT-100-31 28.			
29.		30. Precedence			
		31. Relevant Project Code			

I 122-111

Form 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1										
4. DATE OF RESUME 10/1/76	5. KING OF RESUME D	6. SECURITY U	7. REGARDING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram										
10a. CURRENT NUMBER/CODE I 122-112			10b. PRIOR NUMBER/CODE N/A												
11. TITLE: UPGRADED THIRD ATC FUNCTION (Model 4)															
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE 10/76	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA										
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:														
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Michael Deliman, ARD-112 TEL: (202) 426-9372			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:												
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA												
23. KEYWORDS Conflict Alert, Conflict Resolution, Flight Plan Probe, Metering, RNAV, Local Flow															
24. Technical Objective: To provide automation aid to controllers working in the en route system beyond that presently provided for in the 3d2 system. Goals are to provide further automation capabilities and functions such as: (1) conflict alert; (2) conflict resolution; (3) flight plan probe; (4) en route metering; (5) local flow control; (6) RNAV and; (7) to improve the man-machine interface in the sector position environment; (8) En Route MSAW.															
25. Approach: SRDS and NAFEC with MITRE and other contractor support will define, specify, develop, test, and evaluate the many aspects and applications of the automation enhancement efforts specified under Item 24. Software and hardware specifications, as well as procedural changes, will be developed for incorporating the changes into the en route environment.															
26. Milestones: <table border="0"> <tr> <td>ETABS Concept Test and Evaluation at MITRE DDC Complete</td> <td>12/76</td> </tr> <tr> <td>Complete Conflict Alert Enhancement Development</td> <td>4/77</td> </tr> <tr> <td>Complete Post-1982 RNAV Study</td> <td>6/77</td> </tr> <tr> <td>Deliver Initial Flight Plan Probe Test Report</td> <td>7/77</td> </tr> <tr> <td>Deliver Local Flow Control Test Report for Fifth Update</td> <td>9/77</td> </tr> </table>						ETABS Concept Test and Evaluation at MITRE DDC Complete	12/76	Complete Conflict Alert Enhancement Development	4/77	Complete Post-1982 RNAV Study	6/77	Deliver Initial Flight Plan Probe Test Report	7/77	Deliver Local Flow Control Test Report for Fifth Update	9/77
ETABS Concept Test and Evaluation at MITRE DDC Complete	12/76														
Complete Conflict Alert Enhancement Development	4/77														
Complete Post-1982 RNAV Study	6/77														
Deliver Initial Flight Plan Probe Test Report	7/77														
Deliver Local Flow Control Test Report for Fifth Update	9/77														
26A. Accomplishments for FY-76 E-MSAW Experimental demonstration complete Pre-1982 RNAV Computer Impact Study complete Conflict Alert Low Analysis and Recommendations complete															
27. Source of Requirement FAA-ED-12-2A			28.												
29.			30. Precedence												
			31. Relevant Project Code												

I-122-112

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1710-1								
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram								
10A. CURRENT NUMBER/CODE I 122-113			10B. PRIOR NUMBER/CODE NA										
11. TITLE: COMPUTER CAPACITY RECOVERY													
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE 10/76	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA								
16. PROCURE. METHOD NA	17. CONTRACT/GUANT A. NUMBER: NA C. TYPE: C. AMOUNT:												
18. GOVT LAW/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDV.: Hugh McConnell, ARD-112 TEL: (202) 426-0960			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:										
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA										
23. KEYWORDS Compute Power													
<p>24 Objective: Determine at what time the introduction of additional processors for accomplishment of the CCC function will be justified by processing power demands, obsolescence or other considerations. When requirement for additional processors is evident, develop a data package for procurement.</p> <p>25 Approach: Determine future processing requirements based on traffic growth and the demands of new functions. Investigate the application of distributive and associative processing concepts to future system architecture. Determine the likely breakpoint between costs of resource recovery and costs of additional hardware. MITRE support and the products of other project efforts will be used. NAFEC will provide T&E Support.</p> <p>26 Milestone Schedule:</p> <table border="0"> <tr> <td>Study Report published</td> <td>8/77</td> </tr> <tr> <td>Decision Point - Whether or not to proceed with Engr Model</td> <td>10/77</td> </tr> <tr> <td>Deliver Engineering Model</td> <td>12/79</td> </tr> <tr> <td>Deliver Technical Data Package</td> <td>6/81</td> </tr> </table> <p>26A Accomplishments for FY-76</p> <p>Evaluation of 9020A Storage Expansion Modification Completed</p>						Study Report published	8/77	Decision Point - Whether or not to proceed with Engr Model	10/77	Deliver Engineering Model	12/79	Deliver Technical Data Package	6/81
Study Report published	8/77												
Decision Point - Whether or not to proceed with Engr Model	10/77												
Deliver Engineering Model	12/79												
Deliver Technical Data Package	6/81												
27. Source of Requirement FAA-ED-12-2A			28.										
29.			30. Precedence										
			31. Relevant Project Code										

I 122-113

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1730-1								
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram								
10A. CURRENT NUMBER/CODE I-122-114		10B. PRIOR NUMBER/CODE N/A											
11. TITLE: UPGRADED THIRD SYSTEM DEVELOPMENT (Model 5)													
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE 10/76	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY FAA								
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: NA C. SUBJECT: NA												
18. SUPPLY LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, SW Washington, DC 20591			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:										
20. RESP. INDV. James P. Dugan, ARD-112 TEL: (202) 426-9372													
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA										
23. KEYWORDS Software, Model, Operational System													
<p>24. Technical Objective: To develop, test, and evaluate automation concepts, methods and criteria for improving functional capabilities for the en route Air Traffic Control System. Generally these developments are long-range and are based on acquisition of new system hardware such as DABS and data link.</p> <p>25. Approach: SRDS, NAFEC with MITRE and other contractor support will define, specify, develop, test, and evaluate the many aspects and applications of the automation enhancement efforts specified under Item 24. Software and hardware specifications, as well as procedural changes, will be developed for incorporating the changes into the en route environment.</p>													
<p>26. Milestones Scheduled for Accomplishment:</p> <table> <tr> <td>Phase I IPC/ATC Interaction Report</td> <td>10/76</td> </tr> <tr> <td>DCU/SMMC NCP Testing Complete</td> <td>12/76</td> </tr> <tr> <td>DABS/SSF POFA Testing</td> <td>3/77</td> </tr> <tr> <td>IPC Phase II Design</td> <td>9/77</td> </tr> </table>						Phase I IPC/ATC Interaction Report	10/76	DCU/SMMC NCP Testing Complete	12/76	DABS/SSF POFA Testing	3/77	IPC Phase II Design	9/77
Phase I IPC/ATC Interaction Report	10/76												
DCU/SMMC NCP Testing Complete	12/76												
DABS/SSF POFA Testing	3/77												
IPC Phase II Design	9/77												
<p>26A. Accomplishments for FY-76:</p> <p>En Route/IPC Interface Input and Display Improvement Tests Complete IPC Phase I En Route Interface Design and Testing Complete</p>													
27. Source of Requirement FAA-ED-12-2A			28.										
29.		30. Precedence											
		31. Relevant Project Code											

I-122-114

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENTIFICATION RD 1742-1
4. DATE OF RESUME 9/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE I 122-115		10A. PRIOR NUMBER/CODE NA			
11. TITLE: Interface Development					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE 10/76	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY FAA
12. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. ACCOUNT:				
19. GOVT LAB/INST. LOCATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street., S.W. Washington, D.C. 20591 RESP. INDIV.: Parker Harris, ARD-111 TELE: (202) 426-9372			23. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TELE: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
27. KEYWORDS Interface, Hardware, and Software Changes					
24. Technical Objective: Interface the en route automation system with the products of other SRDS development efforts.					
25. Approach: SRDS, with NAFEC support, will maintain liason with other E&D programs to establish new interface characteristics and requirements. Control documentation will be prepared as necessary. System modifications will be developed, tested, evaluated and handed off to the implementing services					
26. Milestones : Prepare NCP for DEN Metering and Spacing Design 10/77 Interface Processor development decision 10/77 Prepare NCP for TIPS Interface Design 7/78 Interface Processor Engineering Model delivered 7/79 Interface Processor TDP to AAF 5/80					
26A. Accomplishments for FY-76: NADIN/9020 Interface Control Document Issued Integrated National Airspace Communication System concept report reviewed Documentation requirements for DABS Interface established					
27. Source of Requirement FAA-ED-12-2A			28.		
29.			30. Precedence		
			31. Relevant Project Code		

I 122-115

Items 1 to 26 identical to
Form 1-122-115

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYM. RD 1710-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE 1-122-116			10A. PRIOR NUMBER/CODE N/A		
11. TITLE: System Support Facility					
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE 10/76	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GUANT A. NUMBER: NA B. TYPE: C. AMOUNT:				
18. GOV'T LAW/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street S.W. Wash., D.C. 20591			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
20. RESP. INDIV.: Hugh McConnell, ARD-112 TEL: (202) 426-0960					
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS System Support Facility, Software Production Tools					
24. <u>Technical Objective:</u> Establish, operate, and maintain an Air Traffic Control Test Bed environment necessary to accomplish en route hardware and software development, experimentation and testing.					
25. <u>Approach:</u> Fund SRDS use of the NAFEC SSF and first year transition of experimental hardware to the SSF. Improve software production tools by introducing interactive techniques.					
26. <u>Milestones Scheduled for Accomplishment</u> Unit Test Driver (UTD) Requirements Definition 10/76 UTD specification delivered 7/77					
26A. <u>Accomplishments for FY-76</u> Transferred Job Shop Computer System to NAFEC					
27. Source of Requirement FAA-ED-12-2A			28.		
29.			30. Precedence 31. Relevant Project Code		

I-122-116

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. RD 1712-1												
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram												
10. CURRENT NUMBER/CODE I-122-117		11. PRIOR NUMBER/CODE NA															
12. TITLE: UTG Redesign																	
13. SCIENTIFIC OR TECH. AREA N/A			14. START DATE 10/76	15. CRIT. COMPL. DATE N/A	16. FUNDING AGENCY FAA												
17. PROCURE. METHOD NA	18. CONTRACT/GUANT A. NUMBER: NA B. TYPE: C. AMOUNT:																
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd Street., S. W. Wash., D.C. 20591 RESP. INDIV.: D Scheffler, ARD-112 TEL: (202) 426-9374			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: Harry Haugan ASSOCIATE: TEL: 8-346-3011 TYPE:														
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA														
23. KEYWORDS computer efficiency, software, hardware																	
24. <u>Technical Objective:</u> To make more efficient use of the Central Computer Complex and and associated hardware by means of improvements to the design of the software.																	
25. <u>Approach:</u> All aspects of the software architecture and the operational computer programs will be analyzed to determine feasible methods of increasing computer capacity. From previous studies several areas of redesign have been identified as low-risk, high-payoff candidates. These initial candidates plus others which will be agreed upon by a working group of SRDS and personnel from the user services will be developed and tested at NAFEC. The end product will be a technical data package which will be handed off to AAT/AAF for implementation.																	
26. <u>Milestones:</u> <table border="0"> <tr> <td>Design plan complete</td> <td>3/77</td> </tr> <tr> <td>First build design spec.</td> <td>4/77</td> </tr> <tr> <td>First build coding and testing</td> <td>6/77</td> </tr> <tr> <td>First build design verification</td> <td>8/77</td> </tr> <tr> <td>First build operational evaluation</td> <td>11/77</td> </tr> <tr> <td>First build technical data package delivery</td> <td>12/77</td> </tr> </table>						Design plan complete	3/77	First build design spec.	4/77	First build coding and testing	6/77	First build design verification	8/77	First build operational evaluation	11/77	First build technical data package delivery	12/77
Design plan complete	3/77																
First build design spec.	4/77																
First build coding and testing	6/77																
First build design verification	8/77																
First build operational evaluation	11/77																
First build technical data package delivery	12/77																
26A. Accomplishments for FY-76: None																	
27. Source of Requirement FAA-ED-12-2A			28.														
29.			30. Precedence														
			31. Relevant Project Code														

I-122-117

Forms 1 to 26 identical to
DD Form 1270 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME				1.	2. GOVT ACCESSION	3. AGENCY ACCESSION	REPORTS IDENT. SYMB.
4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGRADING	8. RELEASE LIMITATION	9. LEVEL OF RESUME		
10/1/76	D	U	N/A	N/L	Subprogram		
10a. CURRENT NUMBER/CODE				10b. PRIOR NUMBER/CODE			
I 124-111				N/A			
11. TITLE:							
En Route Sustaining Engineering							
12. SCIENTIFIC OR TECH. AREA				13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
N/A				10/1/76	N/A	FAA	
16. PROCURE. METHOD	17. CONTRACT/GRANT		18. RESOURCES EST.	19. PROFESSIONAL MAN-YEARS		20. FUNDS (in thousands)	
N/A	N/A		PRIOR FY				
			CURRENT FY				
19. GOV'T LAB/INSTALLATION/ACTIVITY				20. PERFORMING ORGANIZATION			
NAME: FAA/SRDS				NAME:			
ADDRESS: 2100 Second St., S.W.				ADDRESS:			
Washington, D.C. 20591				INVESTIGATORS			
RESP. INDIV.: John Edgbert, ARD-113				PRINCIPAL:			
TEL: (202) 426-9360				ASSOCIATE:			
21. TECHNOLOGY UTILIZATION				22. COORDINATION			
N/A							
23. KEYWORDS							
In Service Improvements							
24. <u>Technical Objective:</u> Increase air traffic controller capability by equipment improvements and arrangements including correction of design deficiencies in new and existing equipment, upgrading the performance equipment and modifications to improve maintenance effectiveness.							
25. <u>Approach:</u> Problem areas will be identified and defined by field reports, 9550's and/or the Engineering Development Program Plan. Corrective designs will then be developed, tested, and technically documented for implementation by AAF utilizing NAFEC T&E support under SRDS management guidance.							
26. <u>Milestones:</u>							
Report on CRT Rebuild feasibility				12/76			
Lighting Study Final Report				2/77			
Anti-reflection CRT Contract				6/77			
Laminar Flow Gun CRT evaluation complete				8/77			
Portable CRT test set evaluation complete				10/77			
Final report and Technical Data Package to AAF				12/77			
26A <u>Accomplishments FY-76:</u>							
Lighting Study Boston ARTCC completed							
Report CRT rebuild evaluation							
Keyboard specification							
Preproduction CRT tester							
27. REMARKS							
Source of Requirement: FAA-ED-12-2A Engineering & Development Program Plan En Route Control							
				Relevant Project Code			

13 FLIGHT SERVICE STATIONS

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME
10a. CURRENT NUMBER/CODE I 131-440			10b. PRIOR NUMBER/CODE I 131-451		
11. TITLE: FSS ENGINEERING DEVELOPMENT					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATES: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: SRDS/FAA ADDRESS: 2100 Second Street, SW Washington, DC 20590 RESP. INDIV.: Vince Costantino, ARD-444 TEL: 202-426-9393			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS FSS Hardware/Software Evaluation Analysis					
24. <u>TECHNICAL OBJECTIVE:</u> To increase the Flight Service Station System productivity and provide better service to users during the intermediate and modernization phase of FSS improvements.					
25. <u>APPROACH:</u> Provide a FSS laboratory work environment prior to establishment of the modernized FSS lab wherein new equipment can be installed, tested and evaluated. Define and validate concepts for FSS improvements through analysis, tests, and demonstrations. Apply digital technology to the mass dissemination of Meteorological and Aeronautical information through PATWAS/TWEB outlets. Develop, evaluate and demonstrate a mass weather dissemination digital system utilizing NAFEC facilities and resources.					
26. <u>MILESTONES SCHEDULED FOR ACCOMPLISHMENT:</u>					
Define Automation Message Computer System				10/76	
New York PATWAS test report				11/76	
Chicago FSS Data Collection				12/76	
Leesburg Data Collection Report				12/76	
Final report DF System Configuration				3/77	
Demo Mass Weather System Synchro access				6/77	
Mass weather system Tech Data package				4/78	
27. <u>ACCOMPLISHMENTS: FY-1976</u>					
ARD Near Term Plan				Completed	
Bldg 171 Mods and equipment installed				Completed	
27. Source of Requirement Master Plan for the FSS Modernization Program.			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I 131-440

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME
10a. CURRENT NUMBER/CODE I 132-442			10b. PRIOR NUMBER/CODE I 132-421		
11. TITLE: SYSTEM ENHANCEMENT					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AGENCY:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, SW Washington, DC 20590 RESP. INDV.: Carey Weigel, ARD-440 TEL: 202-426-9393			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Flight Service System, Automation, Enhanced System, Self Briefing, Direct Access					
24. OBJECTIVE: Provide expansion capability to the Baseline System such that system capacity can be increased, system function/specialist operations can be improved and future service quality and timeliness can be enhanced.					
25. APPROACH: This subprogram will identify necessary developments required to accomplish FSS enhancements. The principle projects included in the subprogram are 132-442-104, Automated User Access and 132-442-204, Operational Products Enhancement. Primary developments in this subprogram will address features to enable users to directly access the Aviation Weather data base through utilization of various types of remote terminals. TSC and contract support will be utilized for technical development.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENTS					
Enhancement Development Contract - Statement of Work			12/76		
Automated User Access Test Bed Operating			1/77		
Definition of Weather Requirements for Enhanced Capabilities			Continuous		
Enhancement Contract Award			1/78		
Enhancement Test Bed Established at NAFEC			5/80		
Procurement Spec. for Enhancements			9/80		
27. Source of Requirement DOT/FAA Study 8/73 "A Proposal for the Future of Flight Service Stations"			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

I 132-421

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME
10a. CURRENT NUMBER/CODE I 132-440		10b. PRIOR NUMBER/CODE N/A			
11. TITLE: SYSTEM ENGINEERING					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, SW Washington, DC RESP. INDIV.: Donald Johnson, ARD-442 TEL: 202-426-9393			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Requirements Analysis, System Configuration Design					
24. <u>TECHNICAL OBJECTIVE:</u> Design a cost effective modular automated national system that will allow implementation in an orderly manner.					
25. <u>APPROACH:</u> Analysis will be performed to provide for an optimum system configuration. Optimum techniques will be determined for performing the required functions of the National Flight Service System and a collocated prototype Automated Flight Service Facility will be tested and evaluated at the Leesburg ARTCC. MITRE Corporation will provide technical support.					
26. <u>MILESTONES SCHEDULED FOR ACCOMPLISHMENTS:</u> Emergency Service Analysis Report (NAFEC) 1/76 Leesburg AWANS Operational 1/77 Direct User Access Analysis 7/77 Joint Use Design Complete 12/77 <u>ACCOMPLISHMENTS:</u> FY-1976 System RMA Spec (RADG) 5/76					
27. Source of Requirement DOT/FAA Study "A" Proposal for the Future of FSS.			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I 132-440

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME
10a. CURRENT NUMBER/CODE I 132-441		10b. PRIOR NUMBER/CODE I 132-421			
11. TITLE: BASELINE SYSTEM DEVELOPMENT					
12. SCIENTIFIC OR TECH. AREA		13. START DATE		14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: SRDS/FAA ADDRESS: 2100 Second Street, SW Washington, DC 20590 RESP. INDV.: W. L. Young, ARD-442 TEL: 202-426-9393		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS FSS, Automation, System Design					
24. <u>TECHNICAL OBJECTIVE:</u> Develop a baseline automated system capable of modular expansion to include user demand increases, user access methods, and functional improvements.					
25. <u>APPROACH:</u> SRDS/NAFEC in-house personnel, with MITRE Corporation support, will be used to provide: (1) system and subsystem analysis, design definition and experimentation/validation testing of the functional prototype system (AWANS); (2) packaging and specification of the Baseline System design; and (3) contract monitoring of the Baseline System contract.					
<u>MILESTONES SCHEDULED FOR ACCOMPLISHMENT:</u>					
Complete preparation of Baseline System specification				12/76	
Handoff of AWANS to Southern Region				3/77	
Baseline System contract award				12/77	
System initial operating capability				3/81	
<u>ACCOMPLISHMENTS:</u> FY-1976					
AWANS installation complete at Atlanta Completion of AWANS operational test and evaluation					
27. Source of Requirement DOT/FAA Study 8/73 "A Proposal for the Future of FSS			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I 132-441

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

14 TERMINAL/TOWER CONTROL

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMB. RD 1750-1
5. DATE OF RESUME 10-1-76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
11. CURRENT NUMBER/CODE I 142-120		12. PRIOR NUMBER/CODE			
13. TITLE SOFTWARE TECHNICAL SUPPORT					
14. SCIENTIFIC OR TECH. AREA NA		15. START DATE 10-76	16. CRIT. COMPL. DATE NA	17. FUNDING AGENCY NA	
18. PROCURE. METHOD NA	19. CONTRACT/GRANT NA		20. PERFORMING ORGANIZATION		
21. SCOP. LAB/INSTALLATION/ACTIVITY FAA/SRDS 2100 2nd St. S.W. Washington, D.C. 20591		22. INVESTIGATOR PRINCIPAL: ASSOCIATE:			
23. RESP. MONV. J. R. Talley, ARD-120 TEL: (202) 426-9336		24. TYPE:			
25. TECHNOLOGY UTILIZATION NA		26. COORDINATION NA			
27. KEYWORDS Software Expertise and Support					
28. Technical Objective: Provide the software support and technical expertise in the Terminal Development program.					
29. Approach: SRDS/ARD-140 will provide the manpower/software resources to support the terminal development program with contract technical monitors; to review design and study data; participate in experiments at NAFEC and field sites; produce limited software for preliminary interfacing of subsystem and systems when contractual resources are not available.					
30. Milestones Scheduled for Accomplishment:					
1. Metering and Spacing field evaluation - Report 3/77 2. Support of ARTS III Phase II 9/77					
31. Accomplishments for FY-76:					
1. Support of MSAW tests - Report 2. DR&A Program for M&S and Conflict Alert - Report					
32. Source of Requirement FAA-ED-14-2		33. Precedence			
34. Relevant Project Code		35. Relevant Project Code			
36. Relevant Project Code		37. Relevant Project Code			

I 142-120

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS ICENT. SYMB. RD 1750-1								
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram								
10a. CURRENT NUMBER/CODE I 142-121			10b. PRIOR NUMBER/CODE										
11. TITLE: PROGRAM PLANNING AND SYSTEM ENGINEERING													
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE 10-76	14. CONT. COMPL. DATE NA	15. FUNDING AGENCY NA									
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER NA b. TYPE c. ACCOUNT												
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: ADDRESS: 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDIV.: H. McEvoy, ARD-120 TEL: (202) 426-9334		19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL ASSOCIATE TEL: TYPE:											
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA											
23. KEYWORDS ARTS III Program Planning and System Engineering													
<p>24. <u>Technical Objective:</u> Support activity to perform Program 14 system planning and engineering to ensure that overall terminal automation development efforts result in an upgraded third generation system design.</p> <p>25. <u>Approach:</u> SRDS with contractor and NAFEC support will perform required analyses and design studies to prepare test plans, engineering requirement specifications and system test reports.</p> <p>26. <u>Milestones Scheduled for Accomplishment:</u></p> <table border="0"> <tr> <td>1. Conflict Alert Design Verification Test Plan</td> <td>9/76</td> </tr> <tr> <td>2. Test Analysis of Metering and Spacing at NAFEC</td> <td>4/77</td> </tr> <tr> <td>3. TIPS/NAS/ARTS III Interface Design Data</td> <td>6/77</td> </tr> <tr> <td>4. TIPS NAFEC Test Requirements</td> <td>12/77</td> </tr> </table> <p>26A. <u>Accomplishments for FY-76:</u></p> <p>Test Plan for Terminal DABS/IPC Phase I Software Requirements for IPC Phase I Test TIPS Engineering Requirement Specification Conflict Alert Stage I Design Analysis</p>						1. Conflict Alert Design Verification Test Plan	9/76	2. Test Analysis of Metering and Spacing at NAFEC	4/77	3. TIPS/NAS/ARTS III Interface Design Data	6/77	4. TIPS NAFEC Test Requirements	12/77
1. Conflict Alert Design Verification Test Plan	9/76												
2. Test Analysis of Metering and Spacing at NAFEC	4/77												
3. TIPS/NAS/ARTS III Interface Design Data	6/77												
4. TIPS NAFEC Test Requirements	12/77												
27. Source of Requirement FAA-ED-14-2			28.										
29.		30. Precedence											
		31. Relevant Project Code											

I 142-121

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMS. RD 1750-1
5. DATE OF RESUME 10-1-76	6. KIND OF RESUME D	7. SECURITY U	8. REGARDING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
11. CURRENT NUMBER/CODE I 142-171			12. PRIOR NUMBER/CODE		
13. TITLE: ARTS III EXPANSION					
14. SCIENTIFIC OR TECH. AREA NA			15. START DATE 10-76	16. CRIT. COMPL. DATE NA	17. FUNDING AGENCY NA
18. PROCURE. METHOD NA	19. CONTRACT/GRANT NA				
20. GOVT LAB/INSTALLATION/ACTIVITY NAME: ADDRESS: FAA/SRDS 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDV.: A. Millihollon, ARD-120 TEL: (202) 426-9338			21. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS: PRINCIPAL: ASSOCIATE: TEL: TYPE:		
22. TECHNOLOGY UTILIZATION NA			23. COORDINATION NA		
24. ARTS III, Radar/Beacon Tracking, Data Acquisition Subsystem, Radar Processing Development					
24. Technical Objective: Develop, demonstrate and prepare specifications for hardware and software expansion of ARTS III to provide Multisensor Tracking, Digital Remoting and All Digital System improvements.					
25. Approach: SRDS/NAFEC effort with contractor support will be utilized to achieve the above objective. The development efforts will utilize the Terminal Automation Test Facility (TATF) at NAFEC.					
26. Milestones Scheduled for Accomplishment:					
1. Test and Evaluation of Multisensor Tracking System Phase II Completed 5/77 2. Test and Evaluation of Radar Remoting System Completed 3/77 3. Test and Evaluation of Sensor Receiver and Processor (SRAP) Completed 6/77 4. Test and Evaluation of MTD/monopulse SRAP completed 9/77 5. Test and Evaluation of Remote Tower Display System Completed 11/77 6. Test and Evaluation of All-Digital System Phase II Completed 6/78					
26A. Accomplishments for FY-76:					
1. Test and Evaluation of RVD-4 - Report 2. Test and Evaluation of DROQ - Report 3. Test and Evaluation of Improved VQR - Report 4. Test and Evaluation of All-Digital System Phase I - Report					
27. Source of Requirement FAA-ED-14-2			28.		
29.			30. Precedence		
			31. Relevant Project Code		

I 142-171

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMB. RD 1730-1																
5. DATE OF RESUME 10-1-76	6. KIND OF RESUME D	7. SECURITY U	8. REGARDING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram																
11A. CURRENT NUMBER/CODE I 142-172			11B. PRIOR NUMBER/CODE																		
12. TITLE: METERING AND SPACING																					
13. SCIENTIFIC OR TECH. AREA NA			14. START DATE 10-76	15. CHY. COMPL. DATE NA	16. FUNDING AGENCY NA																
17. PROCURE METHOD NA	18. CONTRACT/GRANT A. NUMBER NA B. TYPE C. AMOUNT																				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: ADDRESS: FAA/SRDS 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDV.: G. Hurst, ARD-120 TEL: (202) 426-9338			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATOR: PRINCIPAL: ASSOCIATE: TEL: TYPE:																		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA																		
23. KEYWORDS ARTS III Enhancement, Processing/Software Development																					
24. Technical Objective: Develop Metering and Spacing computer programs for integration and implementation at ARTS III locations to optimize airspace utilization, reduce delays, improve airport capacity and enhance safety by providing decision assistance to controllers.																					
25. Approach: SRDS/NAFEC effort with contractor support will be utilized. Developed programs will be tested and demonstrated using the TATF at NAFEC and programs will be integrated and implemented at the Denver ARTS III site.																					
26. Milestones Scheduled for Accomplishment:																					
<table border="0"> <tr> <td>1. NAFEC Test Plan</td> <td>11/76</td> </tr> <tr> <td>2. UNIVAC System Demonstration</td> <td>12/76</td> </tr> <tr> <td>3. NAFEC Test/Evaluation Complete</td> <td>3/77</td> </tr> <tr> <td>4. Denver Test Plan</td> <td>5/77</td> </tr> <tr> <td>5. Denver Test/Evaluation Complete</td> <td>12/77</td> </tr> <tr> <td>6. Final Report Documentation</td> <td>2/78</td> </tr> <tr> <td>7. Phase II Contract Modification</td> <td>1/77</td> </tr> <tr> <td>8. Phase II Design Data</td> <td>7/78</td> </tr> </table>						1. NAFEC Test Plan	11/76	2. UNIVAC System Demonstration	12/76	3. NAFEC Test/Evaluation Complete	3/77	4. Denver Test Plan	5/77	5. Denver Test/Evaluation Complete	12/77	6. Final Report Documentation	2/78	7. Phase II Contract Modification	1/77	8. Phase II Design Data	7/78
1. NAFEC Test Plan	11/76																				
2. UNIVAC System Demonstration	12/76																				
3. NAFEC Test/Evaluation Complete	3/77																				
4. Denver Test Plan	5/77																				
5. Denver Test/Evaluation Complete	12/77																				
6. Final Report Documentation	2/78																				
7. Phase II Contract Modification	1/77																				
8. Phase II Design Data	7/78																				
26A. Accomplishments for FY-76:																					
Design Data Completed Contract Modification to Extend Schedule Decision Regarding Denver Field Tests																					
27. Source of Requirement FAA-ED-14-2			28.																		
29.			30. Precedence																		
			31. Relevant Project Code																		

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1												
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram												
10. CURRENT NUMBER/CODE I 142-173			11. PRIOR NUMBER/CODE														
12. TITLE: TOWER INFORMATION PROCESSING SYSTEM																	
13. SCIENTIFIC OR TECH. AREA NA			14. ENTRY DATE 10-76	15. CRIT. COMPL. DATE NA	16. FUNDING AGENCY NA												
17. PROCURE. METHOD NA	18. CONTRACT/GRANT a. NUMBER NA b. TYPE c. ACCOUNT:																
19. SUPPLY CLASS/INSTALLATION/ACTIVITY NAME: ADDRESS: FAA/SRDS 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDV.: K. Cohen, ARD-120 TEL: (202) 426-9342			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATOR: PRINCIPAL: ASSOCIATE: TEL: TYPE:														
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA														
23. SYNOPSIS Terminal Automation, Flight Data Handling, ARTS III Enhancement																	
<p>24. <u>Technical Objective:</u> Develop capability for automated flight plan processing, distribution and issuance of clearances in high density ARTS III facilities.</p> <p>25. <u>Approach:</u> SRDS/NAFEC effort with contractor support will be utilized. The development system will be tested and evaluated with the TATF at NAFEC and at a designated field facility.</p> <p>26. <u>Milestones Scheduled for Accomplishment:</u></p> <table border="0"> <tr> <td>1. RFP Issuance</td> <td>5/77</td> </tr> <tr> <td>2. Proposed Contract Award for Prototype</td> <td>12/77</td> </tr> <tr> <td>3. Delivery of Prototype at NAFEC</td> <td>9/78</td> </tr> <tr> <td>4. Test/Evaluation Complete (NAFEC)</td> <td>12/78</td> </tr> <tr> <td>5. Test/Evaluation Complete (Field Site)</td> <td>3/79</td> </tr> <tr> <td>6. Technical Data Package Documentation</td> <td>4/79</td> </tr> </table> <p>26A. <u>Accomplishments for FY-76:</u></p> <p>Engineering Requirement Completed ER Review by AAT Completed ER Revision Completed</p>						1. RFP Issuance	5/77	2. Proposed Contract Award for Prototype	12/77	3. Delivery of Prototype at NAFEC	9/78	4. Test/Evaluation Complete (NAFEC)	12/78	5. Test/Evaluation Complete (Field Site)	3/79	6. Technical Data Package Documentation	4/79
1. RFP Issuance	5/77																
2. Proposed Contract Award for Prototype	12/77																
3. Delivery of Prototype at NAFEC	9/78																
4. Test/Evaluation Complete (NAFEC)	12/78																
5. Test/Evaluation Complete (Field Site)	3/79																
6. Technical Data Package Documentation	4/79																
27. Source of Requirement FAA-ED-14-2			28.														
29.		30. Precedence															
		31. Relevant Project Code															

I 142-173

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1																
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NI	9. LEVEL OF RESUME Subprogram																
10A. CURRENT NUMBER/CODE I 142-174			10B. PRIOR NUMBER/CODE																		
11. TITLE: CONFLICT ALERT & RESOLUTION																					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE 10-76	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA																
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER NA B. TYPE C. DATE D. AMOUNT																				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: ADDRESS: FAA/SRDS 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDIV.: G. Rowland, ARD-120 TEL: (202) 426-9342			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATOR: PRINCIPAL: ASSOCIATE: TEL: TYPE:																		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA																		
22. KEYWORDS ARTS III, Radar/Beacon Tracking, Data Acquisition Subsystem, Radar Processing Development																					
24. Technical Objective: Develop a four stage conflict alert and resolution program to support all ARTS III field sites in both current and future levels of sophistication																					
25. Approach: SRDS/NAFEC effort with contractor support to design, code and demonstrate the programs for single and dual beacon ARTS III sites. Contractor will assist during NAFEC and field evaluation.																					
26. Milestones Scheduled for Accomplishment:																					
<table border="0"> <tr> <td>1. Stage I Technical Data Package</td> <td>7/77</td> </tr> <tr> <td>2. Decision Required on Implementation - Stage I</td> <td>10/77</td> </tr> <tr> <td>3. Stage II Technical Data Package</td> <td>3/78</td> </tr> <tr> <td>4. Decision Required on Implementation - Stage II</td> <td>6/78</td> </tr> <tr> <td>5. Stage III Technical Data Package</td> <td>4/79</td> </tr> <tr> <td>6. Decision Required on Implementation - Stage III</td> <td>7/79</td> </tr> <tr> <td>7. Stage IV Technical Data Package</td> <td>4/79</td> </tr> <tr> <td>8. Decision Required on Implementation - Stage IV</td> <td>7/79</td> </tr> </table>						1. Stage I Technical Data Package	7/77	2. Decision Required on Implementation - Stage I	10/77	3. Stage II Technical Data Package	3/78	4. Decision Required on Implementation - Stage II	6/78	5. Stage III Technical Data Package	4/79	6. Decision Required on Implementation - Stage III	7/79	7. Stage IV Technical Data Package	4/79	8. Decision Required on Implementation - Stage IV	7/79
1. Stage I Technical Data Package	7/77																				
2. Decision Required on Implementation - Stage I	10/77																				
3. Stage II Technical Data Package	3/78																				
4. Decision Required on Implementation - Stage II	6/78																				
5. Stage III Technical Data Package	4/79																				
6. Decision Required on Implementation - Stage III	7/79																				
7. Stage IV Technical Data Package	4/79																				
8. Decision Required on Implementation - Stage IV	7/79																				
26A. Accomplishments for FY-76:																					
Conflict Alert Design Requirements Contract Mod #3 Negotiations Draft Design Data Draft Test Plan Operational T&E at NAFEC																					
27. Source of Requirement FAA-ED-14-2			28.																		
29.			30. Precedence																		
			31. Relevant Project Code																		

I 142-174

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750.1
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. RECLASSIFIED NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10A. CURRENT NUMBER/CODE I 142-175			10B. PRIOR NUMBER/CODE		
11. TITLE: ARTS II ENHANCEMENTS					
12. SUBJECTIVE OR TECH. AREA NA			13. START DATE 10-76	14. ORGT. COMPL. DATE NA	15. FUNDING AGENCY NA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER NA C. TYPE D. REPORT				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME ADDRESS FAA/SRDS 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDV.: D. Vogel, ARD-120 TEL: (202) 426-1336			19. PERFORMING ORGANIZATION NAME ADDRESS INVESTIGATOR PRINCIPAL ASSOCIATE TEL: TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS ARTS II, Radar Beacon/Tracking, Data Acquisition Subsystem, Radar Processing Development					
24. Technical Objective: Development of enhanced hardware and software capabilities for ARTS II systems to provide MSAW, Conflict Alert and other functional operational system requirements.					
25. Approach: SRDS/NAFEC effort with contractor support will be utilized. Developed functional package enhancements will be tested and evaluated in the ARTS II Lab/TATF at NAFEC and at designated field site.					
26. Milestones Scheduled for Accomplishment:					
1. Acquisition Paper Approval 4/77					
2. Engineering Requirement Completed 5/77					
3. Procurement Request Issued 5/77					
4. Request for Proposals Issued 8/77					
5. Contract Award 2/78					
6. Package A (beacon tracking, MSAW, Conflict Alert) 2/79					
7. Package B (training simulator, TIPS Interface) 1/80					
8. Package C (DABS Interface, Radar Tracking) 1/81					
26A. Accomplishments for FY-76:					
Preliminary Design/Preparation & Review of Acquisition Paper					
27. Source of Requirement FAA-ED-14-2			28.		
29.			30. Precedence		
			31. Relevant Project Code		

I 142-175

Trans 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMS. RD 1750-1
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. REGARDING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10A. CURRENT NUMBER/CODE I 142-176			10B. PRIOR NUMBER/CODE None		
11. TITLE: ATC APPLICATIONS OF MESSAGE AUTOMATION					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE 10-76	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER NA B. TYPE C. DATE D. SECURITY				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME ADDRESS 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDV.: J. D. Horrocks, ARD-120 TEL: (202) 426-1328			19. PERFORMING ORGANIZATION NAME ADDRESS INVESTIGATORS PRINCIPAL ASSOCIATE TEL: TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS Controller/Computer Interface, ATC, ARTS III Enhancement, Intermittent Positive Control					
24. <u>Technical Objective:</u> To support and conduct development, test and evaluation of methods and computer programs developed in the subprogram effort through use of the TATF and DSF facilities. Provide data reduction and analysis programs in support of Phase IIB experiments. Provide support in testing efforts for IPC and Conflict Prediction related subprogram activities.					
25. <u>Approach:</u> SRDS/NAFEC will support simulation and design modification activities as required for the development of a controller/computer interface with an ARTS III and simulated link aircraft. Data link evaluation with the ARTS III enhanced target generator will be conducted on the TATF system. IPC and Conflict Prediction evaluation will be conducted on the TATF and DSF systems.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
1. IPC Phase I Testing Completed - Report 12/77					
26A. <u>Accomplishments for FY-76:</u>					
1. Data Link Final Report Completed					
2. Software Requirements for IPC Phase I Testing - Specification					
27. Source of Requirement FAA-ED-14-2			28.		
29.			30. Precedence		
			31. Relevant Project Code		

I 142-176

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

AD-A034 195

FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTE--ETC F/G 17/7
SRDS TECHNICAL PROGRAM DOCUMENT, FISCAL YEAR 1977 ENGINEERING A--ETC(U)
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2-15-77
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RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMS. RD 1750-1
4. DATE OF RESUME 10-1-76	5. KIND OF RESUME D	6. SECURITY U	7. RESTRICTION NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10A. CURRENT NUMBER/CODE I 142-177		10B. PRIOR NUMBER/CODE			
11. TITLE: CONFIGURATION AND PROCEDURES					
12. SCIENTIFIC OR TECH. AREA NA		13. WORK DATE 10-76	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY NA	
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT a. NUMBER NA b. TYPE c. AMOUNT				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME ADDRESS FAA/SRDS 2100 2nd St. S.W. Washington, D.C. 20591 WSP. INDV.: N. Houska, ARD-120 TEL: (202) 426-9338		19. PERFORMING ORGANIZATION NAME ADDRESS INVESTIGATOR PRINCIPAL ASSOCIATE TEL: TYPE:			
20. TECHNOLOGY UTILIZATION NA		21. COORDINATION NA			
22. KEYWORDS Special tests, data collection and analysis					
<p>24. Technical Objective: Accomplish special tests, data collection and analysis efforts related to various procedural and airspace utilization aspects of terminal operations. Develop information that will enable determination of the operational/procedural implications and considerations relevant to implementation of proposed changes affecting air traffic management and determine procedures and operating techniques necessary for the application of a new concept of substantial change in terminal airspace utilization methods.</p> <p>25. Approach: SRDS/NAFEC in-house support will be provided to support the technical objective, as required.</p> <p>26. Milestones Scheduled for Accomplishment: To be determined.</p> <p>26A. Accomplishments for FY-76: No activity scheduled in FY-76.</p>					
27. Source of Requirement FAA-ED-14-2			28.		
29.		30. Precedence 31. Relevant Project Code			

I 142-177

From 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1730-1														
4. DATE OF RESUME 10-1-76	5. TYPE OF RESUME D	6. SECURITY U	7. RECLASSIFICATION NA	8. RELEASE LIMITATION RL	9. LEVEL OF RESUME Subprogram														
10. CURRENT NUMBER/CODE I 142-179		11. PIRN NUMBER/CODE																	
12. TITLE: TERMINAL AUTOMATED TEST FACILITY																			
13. SCIENTIFIC OR TECH. AREA NA		14. FERRY DATE 10-76	15. EST. COMPL. DATE NA	16. FUNDING AGENCY NA															
17. PROCURE METHOD NA	18. CONTRACT/GRANT NA	19. DATE																	
20. GOVT LAB/INSTALLATION/ACTIVITY		21. PERFORMING ORGANIZATION																	
NAME: FAA/SRDS ADDRESS: 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INSPV.: J. Cawley, ARD-120 TEL.: (202) 426-9338		NAME: ADDRESS: INVESTIGATOR: PRINCIPAL: ASSOCIATE: TEL.: TYPE:																	
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA																	
24. KEYWORDS: ARTS III, Test Evaluation, Integration, System Enhancement																			
<p>24. Technical Objective: Establish, maintain, and operate a Terminal Automation Test Facility (TATF) at NAFEC for use in the development, test, evaluation and integration of advanced Terminal/Tower ATC software and hardware systems.</p> <p>25. Approach: NAFEC technical and operational resources supplemented with contract technical services will be used to manage, maintain, operate and schedule the TATF.</p> <p>26. Milestones Scheduled for Accomplishment:</p> <table border="0"> <tr> <td>1. Installation of IOP</td> <td>11/76</td> </tr> <tr> <td>2. TATF Control Tower Construction Complete</td> <td>1/77</td> </tr> <tr> <td>3. TATF Control Tower Available for R&D Programs</td> <td>3/77</td> </tr> <tr> <td>4. Installation of IOPAs (2)</td> <td>9/77</td> </tr> <tr> <td>5. Installation of PEC (1)</td> <td>9/77</td> </tr> <tr> <td>6. Installation of CEC (1)</td> <td>9/77</td> </tr> <tr> <td>7. Installation of Memory Modules (4)</td> <td>9/77</td> </tr> </table> <p>26A. Accomplishments for FY-76:</p> <p>Specification for Implementation of Modular Expandable TATF Concept Installation of Additional Memory Modules (4)</p>						1. Installation of IOP	11/76	2. TATF Control Tower Construction Complete	1/77	3. TATF Control Tower Available for R&D Programs	3/77	4. Installation of IOPAs (2)	9/77	5. Installation of PEC (1)	9/77	6. Installation of CEC (1)	9/77	7. Installation of Memory Modules (4)	9/77
1. Installation of IOP	11/76																		
2. TATF Control Tower Construction Complete	1/77																		
3. TATF Control Tower Available for R&D Programs	3/77																		
4. Installation of IOPAs (2)	9/77																		
5. Installation of PEC (1)	9/77																		
6. Installation of CEC (1)	9/77																		
7. Installation of Memory Modules (4)	9/77																		
27. Source of Requirement FAA-ED-14-2			28.																
29.		30. Precedence																	
		31. Relevant Project Code																	

I 142-179

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1										
4. DATE OF RESUME 10-1-76	5. TYPE OF RESUME D	6. SECURITY U	7. RESEARCH NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram										
10. CURRENT NUMBER/CODE I 144-170			11. PRIOR NUMBER/CODE												
12. TITLE TERMINAL/TOWER SUSTAINING ENGINEERING															
13. SUMMARY OF TECH. AREA NA			14. FISCAL YEAR 10-76	15. CONT. COMPL. DATE NA	16. FUNDING AGENCY NA										
17. PRECISE SUMMARY NA	18. CONTRACT/GRANT A. NUMBER: NA B. TYPE: A. REPORT:														
19. SUPPORT LAB/INVESTIGATOR NAME: FAA/SRDS ADDRESS: 2100 2nd St. S.W. Washington, D.C. 20591 TELEPHONE: R. Simon, ARD-120 (202) 426-9342			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATOR: PRINCIPAL: RESEARCHER: TEL: TYPE:												
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA												
23. REVISIONS ARTS, I Radar/Beacon Tracking, Data Acquisition Subsystem, Radar Processing Development															
<p>24. <u>Technical Objective:</u> Develop, test and install (5) ARTS III BRITE A/N remote control systems at designated ATC facilities. Provide design service for ATC facility improvements for FAA, other governmental departments as required.</p> <p>25. <u>Approach:</u> SRDS with contractor support will develop and procure 5 remote control systems, test/evaluate and implement for field operational use. Perform experimentation and evaluation of mock-ups and/or live test beds using NAFEC facilities.</p> <p>26. <u>Milestones Scheduled for Accomplishment:</u></p> <table border="0"> <tr> <td>1. Complete Los Angeles Installation</td> <td>10/76</td> </tr> <tr> <td>2. Complete Phoenix Installation</td> <td>10/76</td> </tr> <tr> <td>3. Complete Chicago Installation</td> <td>11/76</td> </tr> <tr> <td>4. Complete Ft. Lauderdale Installation</td> <td>11/76</td> </tr> <tr> <td>5. Deliver Instruction Books/Spares</td> <td>12/76</td> </tr> </table> <p>26A. <u>Accomplishments for FY-76:</u></p> <p>Contract Awarded Factory Tests Completed Completed San Francisco Installation Report on Windsor Locks TRACON Mock-up Report on Baltimore Tower/TRACON Mock-up Report on Dulles Tower Cab Reconfiguration</p>						1. Complete Los Angeles Installation	10/76	2. Complete Phoenix Installation	10/76	3. Complete Chicago Installation	11/76	4. Complete Ft. Lauderdale Installation	11/76	5. Deliver Instruction Books/Spares	12/76
1. Complete Los Angeles Installation	10/76														
2. Complete Phoenix Installation	10/76														
3. Complete Chicago Installation	11/76														
4. Complete Ft. Lauderdale Installation	11/76														
5. Deliver Instruction Books/Spares	12/76														
27. Source of Requirement FAA-ED-14-2			28.												
29.			30. Precedence												
			31. Relevant Project Code												

I 144-170

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

15 WEATHER

RESEARCH AND TECHNOLOGY RESUME		3A	1. GOVT ACCESSION NA	2. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750.1								
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. RESEARCH NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram								
10. CURRENT NUMBER/CODE III 151-451		11. PRIOR NUMBER/CODE NA											
12. TITLE: AVIATION WEATHER DEVICES													
13. SCIENTIFIC OR TECH. AREA		15. START DATE	16. CRIT. COMPL. DATE	18. FUNDING AGENCY									
14. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. SECURITY:												
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St., S.W. Washington, D.C. 20591 RESP. INDV.: A. J. Larsson, ARD-451 TEL: (202) 426-8427		20. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: Atlantic City, N.J. 08405 INVESTIGATORS: PRINCIPAL: E. Schlatter, ANA-440 ASSOCIATE: TEL: 8-346-2759 TYPE:											
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA											
23. KEYWORDS													
<p>24. Technical Objective: The objective of this effort is to examine state-of-the-art weather devices to determine suitability for possible use in the NAS. This evaluation will first consider need, cost/benefit analysis before any actual experimentation will be conducted.</p> <p>25. Approach: This will be an in-house effort with support from NAFEC.</p> <p>Milestones Scheduled for Accomplishment:</p> <table border="0"> <tr> <td>Preparation of project plan initiated.</td> <td>10/76</td> </tr> <tr> <td>Project plan completed.</td> <td>1/77</td> </tr> <tr> <td>Potential candidate equipments for weather support identified.</td> <td>7/77</td> </tr> <tr> <td>Analysis completed.</td> <td>12/77</td> </tr> </table> <p>Accomplishments: This is a new effort - first funded in FY-77.</p>						Preparation of project plan initiated.	10/76	Project plan completed.	1/77	Potential candidate equipments for weather support identified.	7/77	Analysis completed.	12/77
Preparation of project plan initiated.	10/76												
Project plan completed.	1/77												
Potential candidate equipments for weather support identified.	7/77												
Analysis completed.	12/77												
27. Source of Requirement Mission oriented		28. Blank											
29. Blank		30. Precedence Blank											
		31. Relevant Project Code											

III 151-451-

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IN-INT. JWD. RD 175
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. RESEARCHING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE III 151-461		11. PRIOR NUMBER/CODE 151-261			
12. TITLE AVIATION WEATHER SUSTAINING ENGINEERING					
13. SCIENTIFIC OR TECH. AREA		14. START DATE	15. CHIT. COMPL. DATE	16. FUNDING AGENCY	
17. PROCURE. METHOD NA	18. CONTRACT/GRANT A. NUMBER: NA C. TYPE: C. AGENCY:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd St., SW Washington, DC 20591		20. PERFORMING ORGANIZATION NAME: NAFEC ADDRESS: Atlantic City, N.J. 08405			
21. RESP. INDV.: A. J. Larsson, ARD-451 TEL: (202) 426-8427		22. INVESTIGATOR PRINCIPAL: E. Schlatter, ANA-440 TEL: 8-346-2759 TYPE:			
23. TECHNOLOGY UTILIZATION NA		24. COORDINATION NA			
25. KEYWORDS Cloud Height, Altimeter, Transmissometer, Ceilometer, Pressure, Visibility					
26. Technical Objective: The objective of this effort is to provide for sustaining engineering support and equipment improvements for aviation weather measurement system presently installed at FAA facilities. Improve availability and provide more cost effective operations and maintenance for such systems as: Transmissometers, RVR signal data converters and related items, altimeter setting indicators, wind measurement and indicating devices, ceilometers, temperature and dewpoint measurement equipment.					
Approach: An in-house effort with support from NWS, NAFEC and TSC.					
Milestones Scheduled for Accomplishment:					
Initial procurement specs provided AGL-4 for regional procurement of RVR recorder. (ATF-76-01)					1/77
Report to AAS on wind direction indicators (AAS-502-76-81)					2/77
Letter report forwarded to AAF giving recommendations for calibration of digital ASI systems. (AAF-76-12)					4/77
Report to AGA on application of Woodhouse Wind Measuring Devices (AGA-76-1)					4/77
Accomplishments for FY-76:					
RVR reference manual draft report submitted					
Tests initiated on Transmissometer Calibrator					
Report on Tasker 500 RVR system submitted by NAFEC					
27. Source of Requirement Mission oriented and 9550's as received		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1127

III 151-461

RESEARCH AND TECHNOLOGY RESUME			1A	2A	3A	REPORTS ACCT. SYM.
1. DATE OF RESUME	2. KIND OF RESUME	3. SECURITY	4. RESEARCH	5. RELEASE LIMITATION	6. LEVEL OF RESUME	
10/1/76	D	U	NA	NL	Subprogram	
7. CURRENT NUMBER/CODE			8. PRIOR NUMBER/CODE			
III 151-462			151-262			
11. TITLE:						
VISIBILITY AND CEILING						
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. EST. COMPL. DATE	15. FUNDING AGENCY	
16. PROCURE. METHOD			17. CONTRACT/GRANT			
NA			NA			
18. GOVT LAB/INSTALLATION/ACTIVITY			19. PERFORMING ORGANIZATION			
NAME: FAA/SRDS			NAME: NAFEC/TSC			
ADDRESS: 2100 Second St., S.W. Washington, D.C. 20591			ADDRESS:			
20. INDIV.: Arthur Hilsenrod, ARD-451			21. INVESTIGATOR			
TEL: (202) 426-8427			22. PRINCIPAL			
23. TECHNOLOGY UTILIZATION			24. COORDINATION			
NA			NA			
25. KEYWORDS						
Visibility, Ceiling, RVR, SVR						
26. Technical Objective: Improve visibility information available to pilots for takeoff and landing operations; provide slant visual range information; provide for RVR measurement below 600 feet RVR; aid in developing international standards for RVR.						
27. Approach: Funding permitting two RVR systems will be evaluated at operational airports. TSC will monitor laser techniques for application to SVR and RVR measurements. TSC will provide cost deployment study of visibility equipment.						
28. Milestones Scheduled for Accomplishment:						
Initiate procurement of slant range visibility equipment for test. 11/76						
Publish final report on SVR development tests. 12/76						
Publish report on international RVR comparisons. 1/77						
Publish cost-deployment study on visibility equipment. 2/77						
29. Accomplishments for FY-76:						
Specs for prototype procurement of SVR system completed.						
Specs for solid state modification of transmissometers completed.						
Report prepared on comparison on foreign RVR systems.						
30. Source of Requirement			31. Blank			
AFS-400-74-7 PAR 3335.1						
32. Blank			33. Precedence Blank			
			34. Relevant Project Code			

III 151-462

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1A	2A GOVT ACCESSION	3A AGENCY ACCESSION	4A REPORT ACCT. SYMB.								
		NA	NA	NA	RD 1750-2								
5A DATE OF RESUME	6A KIND OF RESUME	7A SECURITY	8A RECLASS	9A RELEASE LIMITATION	10A LEVEL OF RESUME								
10/1/76	D	U	NA	NL	Subprogram								
11A CURRENT NUMBER/CODE			12A PRIOR NUMBER/CODE										
III 152-460			NA										
13. TITLE:													
SUSTAINING ENGINEERING FOR WEATHER DATA PROCESSING & DISTRIBUTION													
14. SCIENTIFIC OR TECH. AREA			15. START DATE	16. CRIT. COMPL. DATE	17. FUNDING AGENCY								
18. PROCURE METHOD	19. CONTRACT/GRANT	20. DATE											
NA	NA												
21. GOVT LAB/INSTALLATION/ACTIVITY		22. PERFORMING ORGANIZATION											
NAME: FAA/SRDS		NAME:											
ADDRESS: 2100 Second St., S.W.		ADDRESS:											
Washington, D.C. 20591													
23. INDV: Carroll Workman, ARD-451		24. INVESTIGATOR											
TEL: (202) 426-8427		PRINCIPAL:											
		ASSOCIATE:											
25. TECHNOLOGY UTILIZATION		26. COORDINATION											
NA		NA											
27. KEYWORDS													
28.													
<p><u>Technical Objective:</u> The objective of this effort is to improve existing weather processing equipment, and to evaluate such equipment in an operational environment.</p> <p><u>Approach:</u> This effort will first implement and evaluate recommendations made in final reports of work completed in FY-76 under 152-462. This effort will be conducted by interagency agreement and by open procurement as noted below.</p> <p><u>Milestone Schedule:</u></p> <table border="0"> <tr> <td>Initiate follow-on effort to permit forecasting thunderstorms from digital radar extrapolation.</td> <td>10/76</td> </tr> <tr> <td>Initiate coordination of equipment installation in Systems Command Center.</td> <td>5/77</td> </tr> <tr> <td>Installation in Systems Command Center completed.</td> <td>12/78</td> </tr> <tr> <td>Update of digital radar extrapolation specs forwarded to AAF.</td> <td>3/79</td> </tr> </table> <p><u>Accomplishments:</u></p> <p>Specifications completed for digital display of weather radar from a remote site.</p>						Initiate follow-on effort to permit forecasting thunderstorms from digital radar extrapolation.	10/76	Initiate coordination of equipment installation in Systems Command Center.	5/77	Installation in Systems Command Center completed.	12/78	Update of digital radar extrapolation specs forwarded to AAF.	3/79
Initiate follow-on effort to permit forecasting thunderstorms from digital radar extrapolation.	10/76												
Initiate coordination of equipment installation in Systems Command Center.	5/77												
Installation in Systems Command Center completed.	12/78												
Update of digital radar extrapolation specs forwarded to AAF.	3/79												
27. Source of Requirement			28.										
Mission oriented and 9550's as received			Blank										
29. Blank			30. Precedence Blank										
			31. Relevant Project Code										

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

III 152-460

RESEARCH AND TECHNOLOGY RESUME		1A	2A	3A	4A
1. DATE OF RESUME	2. KIND OF RESUME	3. SECURITY	4. RESEARCH	5. RELEASE LIMITATION	6. LEVEL OF RESUME
10/1/76	D	U	NA	NL	Subprogram
7. CURRENT NUMBER/COG			8. PRIOR NUMBER/COG		
III 152-461			152-261		
9. TITLE					
IMPROVED AVIATION WEATHER FORECASTING					
10. SCIENTIFIC OR TECH. AREA			11. START DATE	12. CONT. COMPL. DATE	13. FUNDING AGENCY
14. PROCURE. METHOD			15. CONTRACT/GRANT		
NA			NA		
16. GOVT LAB/INSTALLATION/ACTIVITY			17. PERFORMING ORGANIZATION		
NAME: FAA/SRDS			NAME:		
ADDRESS: 2100 Second St., S.W.			ADDRESS:		
Washington, D.C. 20591			INVESTIGATOR		
RESP. INDIV.: Arthur Hilsenrod, ARD-451			PRINCIPAL:		
TEL: (202) 426-8427			ASSOCIATE:		
18. TECHNOLOGY UTILIZATION			19. COORDINATION		
NA			NA		
20. KEYWORDS					
21. Technical Objective: Improve accuracy, timeliness and availability of aviation weather forecasts in time period now to six hours from now.					
22. Approach: Through an IAA with National Weather Service and utilizing available terminal and enroute meteorological observation data, apply new processing techniques and data analysis to improve short range aviation weather forecast products.					
23. Milestones Scheduled for Accomplishment:					
Development plan for short range forecasts published. 10/77					
Publish final report on 0-2 and 2-6 hour thunderstorm forecast technique. 11/76					
24. Accomplishments for FY-76:					
Interim report on thunderstorm forecasting published.					
Improved technique for 2-6 hour thunderstorm forecasting implemented by NWS.					
25. Source of Requirement			26.		
Program Plan ED-15-1			Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

III 152-461

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1A	1A	1A	1A						
1. DATE OF RESUME	2. KIND OF RESUME	3. SECURITY	4. ADDRESS	5. RELEASE LIMITATION	6. LEVEL OF RESUME						
10/1/76	D	U	NA	HL	Subprogram						
10. CURRENT NUMBER/CODE			11. PRIOR NUMBER/CODE								
III 152-462			152-262								
12. TITLE:											
INTEGRATED AVIATION WEATHER SYSTEM FOR NAS											
13. IDENTIFYING OR TECH. AREA		14. ENTRY DATE	15. COMPL. DATE	16. FUNDING AGENCY							
17. PROCURE. METHOD	18. CONTRACT/GRANT	19. DATE									
NA	NA										
20. GOVT. LAB/INSTALLATION/ACTIVITY		21. PERFORMING ORGANIZATION									
NAME: FAA/SRDS		NAME: NAFEC									
ADDRESS: 2100 Second St., S.W. Washington, D.C. 20591		ADDRESS:									
22. INDV.: Carroll Workman, ARD-451		23. INVESTIGATOR									
TEL: (202) 426-8427		24. PRINCIPAL ASSOCIATE									
25. TECHNOLOGY UTILIZATION		26. COORDINATION									
NA		NA									
27. KEYWORDS											
28.											
<p>Technical Objective: This effort is in support of the Upgraded Third Generation Air Traffic Control System and has an objective of integrating improved aviation weather information needed to upgrade weather data support to the various ATC facilities. The effort adapts the existing techniques of sensing and reporting weather to ATC and pilot needs.</p> <p>Approach: The program will be accomplished by in-house, NAFEC and thru inter- and intra- agency agreements. Prime emphasis will be to upgrade the availability and quality of hazardous weather information into the NAS.</p> <p>Milestone Schedule:</p> <table border="0"> <tr> <td>Report on radar detection of thunderstorm hazards for ATC.</td> <td>8/76</td> </tr> <tr> <td>Report on hazardous weather forecast procedure improvement.</td> <td>9/76</td> </tr> <tr> <td>Implement plan for integrated weather support subsystem.</td> <td>9/77</td> </tr> </table> <p>Accomplishments for FY-76:</p> <p>A concept and plan for development of a weather support subsystem for ATC.</p>						Report on radar detection of thunderstorm hazards for ATC.	8/76	Report on hazardous weather forecast procedure improvement.	9/76	Implement plan for integrated weather support subsystem.	9/77
Report on radar detection of thunderstorm hazards for ATC.	8/76										
Report on hazardous weather forecast procedure improvement.	9/76										
Implement plan for integrated weather support subsystem.	9/77										
29. Source of Requirement		30. Blank									
Program Plan 15-1											
29. Blank		30. Precedence Blank									
		31. Relevant Project Code									

III 152-462

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1A	1. ORGY ACCESSION	2. AGENCY ACCESSION	REPORTS ACCT. SYMB.								
		NA	NA	NA	RD 1750-1								
3. DATE OF RESUME	4. KIND OF RESUME	5. SECURITY	6. RESEARCH	7. RELEASE LIMITATION	8. LEVEL OF RESUME								
10/1/76	D	U	NA	RL	Subprogram								
10A. CURRENT NUMBER/CODE			10B. PRIOR NUMBER/CODE										
III 153-451			151-465										
11. TITLE:													
AUTOMATED WEATHER OBSERVATION SYSTEM													
12. SCIENTIFIC OR TECH. AREA			13. STUDY DATE	14. ORGY. COMM. DATE	15. FUNDING AGENCY								
			1/74	8/78	FAA								
16. PROCURE. MEYCOS	17. CONTRACT/GRANT	18. DATE											
NA	NA												
19. SOURCE CLASS/INSTALLATION/ACTIVITY		20. PERFORMING ORGANIZATION											
NAME: FAA/SRDS		NAME:											
ADDRESS: 2100 Second St., S.W.		ADDRESS:											
Washington, D.C. 20591													
21. RESP. INDV.: Warren F. Ottinger, ARD-452		22. INVESTIGATOR											
TEL: (202) 426-8427		PRINCIPAL/ASSOCIATE:											
		TEL: TYPE:											
23. TECHNOLOGY UTILIZATION			24. COORDINATION										
NA			NA										
25. KEYWORDS:													
Lidar, Automation, Weather Observation													
26.													
<p>Technical Objective: To design, test and evaluate a fully automated aviation weather observation system. The final configuration will provide a complete weather observation previously provided by an FSS and is intended for implementation at consolidated FSS locations where a requirement continues for a complete weather observation.</p> <p>Approach: Under an interagency agreement the National Weather Service (NWS) is developing the automated system for the FAA. NWS has contracted with industry to fabricate, install and test the prototype system. SRDS will then relocate system to Salisbury, MD, for operational test and evaluation for one year and then turn system over to operating Services as the first article AV-AWOS.</p> <p>Milestones Scheduled for Accomplishment:</p> <table border="0"> <tr> <td>Cloud algorithm verification complete.</td> <td>11/76</td> </tr> <tr> <td>Prototype field test completed.</td> <td>6/77</td> </tr> <tr> <td>Technical data package delivered to AAF.</td> <td>7/77</td> </tr> <tr> <td>Operational test complete - system to operating Services.</td> <td>8/78</td> </tr> </table> <p>Accomplishments for FY-76:</p> <ul style="list-style-type: none"> Development system installed at Sterling, VA. First cut ceiling and visibility algorithms completed. Development system operational demonstrations conducted. 						Cloud algorithm verification complete.	11/76	Prototype field test completed.	6/77	Technical data package delivered to AAF.	7/77	Operational test complete - system to operating Services.	8/78
Cloud algorithm verification complete.	11/76												
Prototype field test completed.	6/77												
Technical data package delivered to AAF.	7/77												
Operational test complete - system to operating Services.	8/78												
27. Source of Requirement		Program Plan 15-1		28. Blank									
29. Blank		30. Precedence Blank											
		31. Relevant Project Code											

III 153-451

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750.1						
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. RESEARCH NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram						
10. CURRENT NUMBER/CODE III 153-452			11. PRIOR NUMBER/CODE NA								
12. TITLE: SEMI-AUTOMATED WEATHER DATA SYSTEM											
13. SCIENTIFIC OR TECH. AREA			14. START DATE 7/76	15. CRIT. COMPL. DATE 6/77	16. FUNDING AGENCY FAA						
17. PROCURE. METHOD NA	18. CONTRACT/GRANT a. DATE NA										
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St., S.W. Washington, D.C. 20591			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS: PRINCIPAL: ASSOCIATE: TEL: TYPE:								
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA								
23. KEYWORDS											
<p>24. <u>Technical Objective:</u> To design, test and evaluate a semi-automated weather observation system for increasing the efficiency of the surface observation function at limited aviation weather observation stations (LAWRS) control towers.</p> <p>25. <u>Approach:</u> Under an interagency agreement with the National Weather Service a prototype semi-automated weather observation system will be installed and evaluated at the Clarksburg, W.VA., control tower.</p> <p>26. <u>Milestones Scheduled for Accomplishment:</u></p> <table border="0"> <tr> <td>System installed at operational site.</td> <td>1/77</td> </tr> <tr> <td>System evaluation completed.</td> <td>4/77</td> </tr> <tr> <td>Final technical data package to AAF.</td> <td>6/77</td> </tr> </table> <p>27. <u>Accomplishments for FY-76:</u> Agreement signed with NWS.</p>						System installed at operational site.	1/77	System evaluation completed.	4/77	Final technical data package to AAF.	6/77
System installed at operational site.	1/77										
System evaluation completed.	4/77										
Final technical data package to AAF.	6/77										
27. Source of Requirement 9550 - AAT-4Q-1 Program Plan 15-1			28. Blank								
29. Blank			30. Precedence Blank								
			31. Relevant Project Code								

III 153-452

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1722.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMB RD 1750-1										
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram										
11a. CURRENT NUMBER/CODE III-154-451			11b. PRIOR NUMBER/CODE III 151-464												
12. TITLE: WIND SHEAR															
13. SCIENTIFIC OR TECH. AREA			14. ENTRY DATE Continuing	15. CRIT. COMPL. DATE N/A	16. FUNDING AGENCY FAA										
17. PROCURE METHOD NA	17. CONTRACT/GRANT a. NUMBER NA b. TYPE c. SUBJECT														
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second St. S.W. Washington, D.C. 20591 RESP. INDV.: H. G. Tinsley TEL: (202) 426-9350			19. PERFORMING ORGANIZATION NAME: TSC/NAFEC ADDRESS: INVESTIGATOR: PRINCIPAL: ASSOCIATE: TEL: TYPE:												
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA												
22. KEYWORDS: Wind, Wind Shear, Wind Shear Hazard, Acoustics, Laser Anemometry, Gust Fronts, Pressure Jump Sensors, Ground Speed, Aircraft Simulations.															
23. Technical Objectives: Develop a Wind Shear warning system to alert pilots and controllers regarding the location and severity of potentially hazardous wind shears in the terminal area. Approach: Employing the resources of the National Oceanic and Atmospheric Administration (NOAA), the Transportation System Center (TSC) and NASA with support from knowledgeable industrial firms, the hazards posed by wind shear to various classes of aircraft will be quantified and a system for the detection of wind shear will be developed and evaluated for NAS implementation. Both airborne and ground-based solutions will be considered. A data base will be established to provide a source for wind shear climatology. Milestones Scheduled for Accomplishment: <table border="0"> <tr> <td>.. Aircraft Wind Shear Simulation Studies Complete</td> <td>12/76</td> </tr> <tr> <td>.. Hazard Definition Final Report (NASA AMES Simulations)</td> <td>9/77</td> </tr> <tr> <td>.. Airborne System Recommendations</td> <td>12/77</td> </tr> <tr> <td>.. Final Ground System Recommendations</td> <td>5/78</td> </tr> <tr> <td>26. System Implementation Recommendations (includes W/S Prediction)</td> <td>6/78</td> </tr> </table> Accomplishments for FY-76 & 76T Dulles Acoustic Installation Completed Initial ACFT Wind Shear Simulation Completed Initial Gust Front Analysis Completed Prototype CW Laser delivered						.. Aircraft Wind Shear Simulation Studies Complete	12/76	.. Hazard Definition Final Report (NASA AMES Simulations)	9/77	.. Airborne System Recommendations	12/77	.. Final Ground System Recommendations	5/78	26. System Implementation Recommendations (includes W/S Prediction)	6/78
.. Aircraft Wind Shear Simulation Studies Complete	12/76														
.. Hazard Definition Final Report (NASA AMES Simulations)	9/77														
.. Airborne System Recommendations	12/77														
.. Final Ground System Recommendations	5/78														
26. System Implementation Recommendations (includes W/S Prediction)	6/78														
27. Source of Requirement Program Plan ED-15-2			28. Blank												
29. Blank			30. Precedence Blank												
			31. Relevant Project Code												

III 154-451

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

117 000

16 TECHNOLOGY

(Transferred to OSEM)

17 SATELLITES

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. NA	3. NA	4. RD 1759-1
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME D	7. SECURITY U	8. REQUIRING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
11. CURRENT NUMBER/COU I 171-252			12. PRIOR NUMBER/COU		
13. TITLE COMMUNICATIONS/SURVEILLANCE DESIGN FOR OCEANIC SATELLITE SYSTEMS					
14. IDENTIFIER OR TECH. AREA NA		15. START DATE	16. CRIT. COMPL. DATE	17. FUNDING AGENCY FAA	
18. PROCURE. METHOD NA	19. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. AMOUNT:		20. PERFORMING ORGANIZATION NAME: ADDRESS:		
21. GOV. LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591			22. INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
23. TECHNOLOGY UTILIZATION NA			24. COORDINATION NA		
25. KEYWORDS Oceanic Systems. Air Traffic Control. Satellites					
26. <u>Technical Objective:</u> To develop the operational characteristics of an oceanic ATC system in a satellite environment which will meet the aviation needs of the 1990's.					
27. <u>Approach:</u> SRDS, with NAFEC and contractor support, will develop (1) traffic forecast data, (2) airspace and ground network configurations, (3) air/ground communication requirements, and (4) ATC surveillance and control concepts; and (5) assessment of benefits and effectiveness of Satellite ATC & Communication System.					
28. <u>Milestones Scheduled for Accomplishment:</u>					
. Complete International Aviation Forecast					11/76
. Complete Peak Two-Hour Scripts/Progress Strip					12/76
. Complete Channel Access Simulation Effort					1/77
. Complete Two-Hour Peak Period Data Analysis (NAFEC)					4/77
. Acquire SRI Forecast Computer Program					5/77
. Complete System Simulation Study					8/78
. Complete Updated Traffic Forecasts/Communication Study					11/79
. Complete Oceanic System Benefit Study					12/84
29. <u>Accomplishments FY-76:</u>					
. Communication Requirement Study Completed (ARINC)					
. Atlantic Basin Aviation Forecast Completed (SRI)					
30. Source of Requirement EAD Program Plan FAA-ED-17-2			31. Blank		
32. Blank			33. Precedence Blank		
34. Blank			35. Relevant Project Code		
I 171-252			Items 1 to 26 identical to		

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACQUISITION NA	3. AGENCY ACQUISITION NA	4. REPORTS IDENT. SYMB. RD 1755.1
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
11. CURRENT NUMBER/CODE I 172-251		12. PRIOR NUMBER/CODE 172-142			
13. TITLE: OCEANIC/CONUS ATC SYSTEM EXPERIMENTS					
14. SCIENTIFIC OR TECH. AREA			15. START DATE	16. CRIT. COMPL. DATE	17. FUNDING AGENCY FAA
18. PROCURE. METHOD NA	19. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AMOUNT:				
20. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Robert W. Granville, ARD-232 TEL: (202) 755-4995			21. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
22. TECHNOLOGY UTILIZATION NA			23. COORDINATION NA		
24. KEYWORDS Satellite System. Experimentation. ATS-5. ATS-6					
25. Technical Objective: To gather, reduce, and analyze experimental data to support technical design of oceanic and CONUS satellite systems and as a part of AEROSAT enhancement.					
26. Approach: SRDS with TSC, NAFEC and contractor support will develop and test advanced aircraft antennas, input/output devices, modems, a microprocessor, and other devices as necessary to support the experimentation and enhancement of Satellite Communication Systems.					
27. Milestones Scheduled for Accomplishment:					
<ul style="list-style-type: none"> Issue RFP's Modem Modification and L-Band Antenna 11/76 Award Contract, Modem Modification 7/77 Award Contract, L-Band A/C Antenna 7/77 Deliver Modems 9/79 Deliver Microprocessor, I/O Device, & A/C Antenna 9/80 Complete Experimentation Program & Issue Report 12/84 					
28A. Accomplishments FY-76:					
<ul style="list-style-type: none"> Completed ATS-6 Final Report 					
29. Source of Requirement E&D Program Plan FAA-ED-17-1			30. Blank		
31. Blank			32. Precedence Blank		
			33. Relevant Project Code		
I 172-251					

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORT IDENT. SYMB. RD 1759-1										
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram										
11. CURRENT NUMBER/CODE I 173-251		12. PRIOR NUMBER/CODE 101-140, 101-141													
13. TITLE ATC SYSTEMS INTEGRATION															
14. EXTENSION ON TECH AREA		15. START DATE	16. CNIT. COMPL. DATE	17. FUNDING AGENCY FAA											
18. PROCEDURE METHOD NA	19. CONTRACT/GRANT A. NUMBER NA C. TYPE D. AMOUNT														
20. GOVT LAB/INT'L/LLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Robert T. Bergmann, ARD-231 TEL: (202) 426-8496		21. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:													
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA													
24. KEYWORDS AEROSAT, System Integration															
<p>24. <u>Technical Objectives:</u> To perform system engineering and coordination functions necessary to assure total system compatibility of the three major AEROSAT segment (space, ground, and airborne) and to integrate services provided (voice, data, and surveillance) into the oceanic ATC configuration including engineering associated with installation of airborne avionics. To provide system studies of AEROSAT in conjunction with other proposed satellite systems (GPS, INMARSAT, etc.).</p> <p>25. <u>Approach:</u> SRDS/TSC effort, with contract support, will be used to develop interface standards and to identify the various ways of integrating voice, data, and surveillance functions. The primary effort consists of support contracts effected through the issuance of task descriptions involving the overall system design and avionics installation engineering.</p> <p>26. <u>Milestones Scheduled for Accomplishment:</u></p> <table border="0"> <tr> <td>. Award New SEC Contract</td> <td>9/76</td> </tr> <tr> <td>. Re-establish ACO in U.S.</td> <td>8/77</td> </tr> <tr> <td>. Complete A/C Avionics Installation</td> <td>6/81</td> </tr> <tr> <td>. Complete AEROSAT Data, Reduction & Analysis</td> <td>12/83</td> </tr> <tr> <td>. Complete AEROSAT Refinement - Submit Study Paper to DOT, Congress, ICAO</td> <td>12/84</td> </tr> </table> <p>26A. <u>Accomplishments FY-76:</u></p> <ul style="list-style-type: none"> . AEROSAT Coordination Office Established (Holland) . AEROSAT Interface Standards Completed 						. Award New SEC Contract	9/76	. Re-establish ACO in U.S.	8/77	. Complete A/C Avionics Installation	6/81	. Complete AEROSAT Data, Reduction & Analysis	12/83	. Complete AEROSAT Refinement - Submit Study Paper to DOT, Congress, ICAO	12/84
. Award New SEC Contract	9/76														
. Re-establish ACO in U.S.	8/77														
. Complete A/C Avionics Installation	6/81														
. Complete AEROSAT Data, Reduction & Analysis	12/83														
. Complete AEROSAT Refinement - Submit Study Paper to DOT, Congress, ICAO	12/84														
27. Source of Requirement E&D Program Plan FAA-ED-17-2		28. Blank													
29. Blank		30. Precedence Blank													
		31. Relevant Project Code													
I 173-251		Items 1 to 26 identical to DD Form 149A and NASA Form 1122.													

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 173-252			10b. PRIOR NUMBER/CODE		
11. TITLE: SPACE SEGMENT					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AGENCY:				
18. GOV'T LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
20. RESP. INDIV.: Robert T. Bergmann, ARD-231 TEL: (202) 426-8496					
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS AEROSAT, Spacecraft					
24. <u>Technical Objective:</u> To assure that the relay functions (to be provided by a lease contract) of the AEROSAT space segment support the experimental and operational requirements of aviation and meet the necessary interface requirements for integration with the other segments of the system (ground and airborne).					
25. <u>Approach:</u> SRDS, with contractor lease support of satellite services from the U.S. Co-Owner, COMSAT General, will provide the space segment channels and management and integration of this space segment with the ground and avionics segments to meet the terms of reference of the Memorandum of Understanding (MOU) agreed upon between the U. S., Canada and ESA. Considerable effort is required in management of the satellite services and spacecraft design liaison and coordination with the AEROSAT Coordination Office (ACO), the SPO owner's group representing the COMSAT General, ESA, and Canada to insure that FAA commitments are being met during the AEROSAT Test and Evaluation and experimentation program.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
. Satellite Contract Award, FAA Lease Contract					1/77
. Launch First Satellite					11/79
. Launch Second Satellite					7/80
. Complete Satellite Usage, Issue Final Space Segment Report					7/85
26A. <u>Accomplishments FY-76:</u>					
. AEROSAT Satellite RFP Released					
27. Source of Requirement ESD Program Plan FAA-ED-17-2			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		
I 173-252			Items 1 to 26 identical to		

RESEARCH AND TECHNOLOGY RESUME		1. GOVT ACCESSION NA	2. AGENCY ACCESSION NA	3. REPORT IDENT. SYM. PD 173-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL
100. CONTRACT FILE NO/CODE I 173-253		100. PRIOR FILE NO/CODE		
11. TITLE GROUND SEGMENT				
12. SCIENTIFIC OR TECH. AREA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE:	18. DATE:		
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TELE: TYPE:		
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA		
23. KEYWORDS Aeronautical Satellite Communications Center (ASCC), Aeronautical Service Earth Terminal and Mini-ASET (SPATS)				
24. <u>Technical Objective:</u> To define the elements involved in the AEROSAT system ground segment, show their interrelation, and provide for design, procurement, and implementation.				
25. <u>Approach:</u> SRDS with NAFEC and contractor support, will develop and provide ground equipment consisting of the Aeronautical Satellite Control Center (ASCC), the Aeronautical Services Earth Terminal (ASET), the Electronic Test Set (ETS), and the Mini-ASET (SPATS).				
26. <u>Milestones Scheduled for Accomplishment:</u>				
<ul style="list-style-type: none"> Issue 1/2 ASET RFP Award ASCC Contract ASCC and 1/2 ASET Installed at NAFEC I&T Systems Complete ETS/Mini-ASET's Deployed, Issue Report 				12/76 11/76 7/78 11/78 6/80
26A. <u>Accomplishments FY-76:</u>				
<ul style="list-style-type: none"> ASCC Proposal Evaluated 				
27. Source of Requirement E&D Program Plan FAA-ED-17-2		28. Blank		
29. Blank		30. Precedence Blank		
		31. Relevant Project Code		
I 173-253		Items 1 to 26 identical to DD Form 142B and NASA Form 1122.		

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGARDING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 173-254			10b. PRIOR NUMBER/CODE 101-231		
11. TITLE: AVIONICS					
12. SCIENTIFIC OR TECH. AREA			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY I
16. PROCURE. METHOD NA		17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:			
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Robert T. Bergmann TEL: (202) 426-8496			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Evaluation Avionics, Engineering Development Models					
24. <u>Technical Objective:</u> To provide for engineering and development and evaluation of L-Band and VHF avionics that will be used in the experimentation and evaluation of AEROSAT systems.					
25. <u>Approach:</u> SRDS/TSC/NAFEC and contract support will be used to carry out system studies and to procure and evaluate avionics equipment. Initial engineering and evaluation models will be subjected to laboratory and flight tests in conjunction with the ATS-6 and AEROSAT test programs. Subsequently approximately 20 to 50 L-Band and 10 to 20 VHF avionics systems will be developed for installation in air carrier and FAA test aircraft for AEROSAT system experimentation and evaluation.					
26. <u>Milestones Scheduled for Accomplishment:</u> <ul style="list-style-type: none"> L-Band Avionics Contract Award 10/76 Deliver L-Band/VHF EDM Avionics 9/78 Deliver L-Band/VHF Evaluation Avionics, Hardware for Aircraft 6/81 					
26A. <u>Accomplishments FY-76:</u> <ul style="list-style-type: none"> L-Band Avionics Proposals Evaluated 					
27. Source of Requirement E&D Program Plan FAA-ED-17-2			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			
I 173-254					

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORT IDENT. DIV. RD 1752-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE I 173-255		10A. PRIOR NUMBER/CODE			
11. TITLE: TEST AND EVALUATION					
12. SCIENTIFIC OR TECH. AREA		13. START DATE	14. CNIT. COMPL. DATE	15. FUNDING AGENCY	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDV.: Frederic W. Pickett, ARD-232 TEL: (202) 426-8496		20. PERFORMING ORGANIZATION NAME: FAA/NAFEC ADDRESS: Atlantic City, N.J. 08405 INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS AEROSAT Test and Evaluation					
24. <u>Technical Objective:</u> To provide supporting technical and operational data employing voice and data communications and surveillance information via satellites, for an improved oceanic air traffic control system.					
25. <u>Approach:</u> SRDS with NAFEC and TSC support will develop a T&E Program Description which will be coordinated with Canada and ESA. From the T&E Program Description, a Test Plan will be developed and the resultant tests and experimentations will be conducted. Simulation requirements will be defined, and the capability developed in order to support the operational and technical tests that will be conducted during the pre-launch and on-orbit testing phases.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
<ul style="list-style-type: none"> . Complete Test Plan (Draft) 1/77 . Complete RFP for T&E Contractor 1/77 . T&E Simulation Decision 2/77 . T&E Contract Decision Point 4/77 . Start Traffic Sample & Script Preparation 5/77 . Begin AEROSAT T&E Program 1/80 . Complete AEROSAT T&E Program, Issue Evaluation Report 12/83 					
26A. <u>Accomplishments FY-76:</u>					
. AEROSAT T&E Plan Initiated.					
27. Source of Requirement E&D Program Plan FAA-ED-17-2		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			
I 173-255					

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

18 AIRCRAFT SAFETY

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS ACCT. NO. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE IV-181-520		10A. PRIOR NUMBER/CODE N/A			
11. TITLE MODIFIED FUEL					
12. SCIENTIFIC OR TECH. AREA N/A		13. START DATE Continuing	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA	
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: T. G. Horeff, ARD-520 TEL: (202) 426-8416		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Modified Fuel, Crash Fires, Fire Safety					
24. <u>TECHNICAL OBJECTIVE:</u> To evaluate a modified turbine fuel for helicopters and commercial transport aircraft which will reduce the probability and severity of a post crash fire and extend the time available for passenger evacuation and reduce the fatalities due to fire.					
25. <u>APPROACH:</u> Small and large scale tests will be conducted to evaluate and demonstrate the safety benefits of modified fuel by inhibiting the formation of highly flammable mists when fuel is released under survivable crash conditions. These test will establish the basis for engine and fuel system compatibility tests and the preparation of a modified fuel specification for qualification of engines and aircraft to use modified fuel. NAFEC, U.S. Navy and contractual effort supports this activity.					
26. <u>MILESTONES SCHEDULED FOR ACCOMPLISHMENT</u>					
<ul style="list-style-type: none"> Simulated Crash Fuel Release Tests 10/77 Preliminary Fuel System Compatibility Tests 4/77 Large Scale Crash Fuel Release Tests 5/77 Modified Fuel Specification published 11/77 					
26A. <u>ACCOMPLISHMENTS FOR FY-76</u>					
<ul style="list-style-type: none"> Publish Modified Fuel Rheology Report Publish Report on Photographic Investigation of Modified Fuel Ignition. 					
27. Source of Requirement FAA-ED-18-1		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

IV-181-520

Items 1 to 26 identical to
DD Form 1298 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION	3. AGENCY ACCESSION	REPORTS IDENT. SYMB.
4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGRADING	8. RELEASE LIMITATION	9. LEVEL OF RESUME
July 1, 1976	D	U	NA	NL	Subprogram
10a. CURRENT NUMBER/CODE		10b. PRIOR NUMBER/CODE			
IV 181-521		NA			
11. TITLE:					
CABIN CRASH SAFETY					
12. SCIENTIFIC OR TECH. AREA		13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY	
		Continuing	N/A	FAA	
16. PROCURE METHOD	17. CONTRACT/GRANT	18. DATE:			
NA	a. NUMBER: NA	b. TYPE: c. AMOUNT:			
19. GOVT LAB/INSTALLATION/ACTIVITY		20. PERFORMING ORGANIZATION			
NAME: FAA/SRDS		NAME:			
ADDRESS: 2100 Second Street, S.W.		ADDRESS:			
Washington, D.C. 20591					
RCAP. INDIV.: R. C. McGuire, C. Troha, ARD-520		INVESTIGATORS			
TEL: (202) 426-8416		PRINCIPAL:			
		ASSOCIATE:			
		TEL: TYPE:			
21. TECHNOLOGY UTILIZATION		22. COORDINATION			
NA		NA			
23. KEYWORDS					
Cabin-Fire/Materials, Smoke, Toxic-Gas, Flammability					
24. TECHNICAL OBJECTIVE: Develop and/or demonstrate criteria, equipment, systems, fabrics and materials which will minimize hazards to passengers and crew under post-crash conditions.					
25. APPROACH: Investigate fuselage compartmentation/fire suppression/detector systems and interior cabin materials to determine what contribution each concept has to reduce the post-crash fire hazard. Investigate effectiveness of cabin partition configurations to control cabin fire propagation; develop equipment/criteria to assess fire potential of polymeric materials; establish criteria to measure smoke/toxic gas emissions hazard of burning polymeric materials; develop flammability specification for flight attendant uniforms. Validate math model of burning cabin interior using a full-scale facility and develop a practical combined fire hazard criteria.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT					
. Develop a Full-Scale Fire Test Facility					12/76
. Evaluate a Cabin Fire Suppressant System					12/78
. Interim Cabin Material Toxicity Ranking Index					12/76
. Cabin Compartmentation Fire Management System Evaluation					12/78
. Cabin Fire Model Validation					11/77
. Develop Combined Material Fire Hazard Methodology					12/78
26A ACCOMPLISHMENTS FOR FY-76					
. Flight Attendant Uniform Flammability Specification published.					
. Preliminary Cabin Compartmentation Feasibility Report					
. Complete Animal and Gas Analysis of Currently used Interior Cabin Material for Relative Toxicity.					
. Feasibility Report on Halon 1301 as a post-crash fire suppressant.					
(1/76) AFS-100-74-137 (5/76) AFS-100-73-131 (5/76)		25.		Blank	
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

IV 181-521

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS IDENT. SYMB. RD 1750-1
5. DATE OF RESUME July 1, 1976	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram		
10a. CURRENT NUMBER/CODE IV 181-522				10b. PRIOR NUMBER/CODE NA			
11. TITLE INFLIGHT FIRE SAFETY							
12. SCIENTIFIC OR TECH. AREA				13. ENTRY DATE Continuing	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA	
16. PROCURE METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:						
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: J. J. Shea, ARD-520 TEL: (202) 426-8416			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:				
21. TECHNOLOGY UTILIZATION NA				22. COORDINATION NA			
23. KEYWORDS In-Flight Fires, Powerplant, Detection, Control, Extinguishment							
24. TECHNICAL OBJECTIVE: To develop means of reducing the hazards of in-flight aircraft fire through prevention, early detection and rapid extinguishment.							
25. APPROACH: Studies and tests to develop improved fire detection, control and prevention for aircraft powerplant and fuel systems will be conducted via NAFEC in-house and SRDS/Industry contractual efforts.							
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT							
. Nitrogen Inerting Full-Scale Prototype Tests						9/77	
. Electrostatic Charge Tendency of Fuel Filters investigated						8/78	
. Designer's Guide to Titanium use in Turbine Engines						12/77	
26A ACCOMPLISHMENTS FOR FY-76							
. Inerted Fuel Tank Oxygen Concentration Requirements Report							
. Report - Electrical Charge Level of Aircraft Fuel							
. Nitrogen Inerting Breadboard System Development completed							
. Burner Standards for Fire Resistance Testing Published							
27. Source of Requirement FS-100-70-107 FS-100-73-135				28. Blank			
29. Blank				30. Precedence Blank			
				31. Relevant Project Code			

IV 181-522

 Items 1 to 25 identical to
 DD Form 129A and
 NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE IV 182-520		10b. PRIOR NUMBER/CODE NA			
11. TITLE: AIRCRAFT AIRWORTHINESS					
12. SCIENTIFIC OR TECH. AREA			13. START DATE Continuing	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Herbert C. Spicer, Jr., C. Troha, ARD-520 TEL: (202) 426-8416		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Aircraft, Flight Loads, Ground Loads, Aircraft Structures, Maintenance					
24. <u>TECHNICAL OBJECTIVES:</u> To develop and adapt new safety technology in the areas of flight and ground loads, aircraft structures and systems, and maintenance and inspection technology for transport aircraft. To prepare recommendations to the various agency services for new or improved airworthiness certification and/or operational requirements, as well as acceptable methods to comply with the requirements.					
25. <u>APPROACH:</u> Accident statistics, service information, and new design concepts, materials applications and manufacturing techniques will be continually analyzed to identify areas where safety improvements are necessary to yield the maximum benefits to reducing the likelihood of accidents and improving the crashworthiness of the structure. Promising areas will be investigated to identify technology adaptation or improvements and R&D will be conducted to yield proposals for new or improved airworthiness regulations. Efforts will be initiated to answer safety needs expressed by other components of the agency. NAFEC and contractual effort supports this activity.					
26. <u>MILESTONES SCHEDULED FOR ACCOMPLISHMENT</u>					
<ul style="list-style-type: none"> Structural Inspection Simulation Program Report Transport Crashworthiness Simulation Methodology Report Least Risk Bomb Placement Studies for Transport Aircraft Explosion Tests Within a Pressurized Fuselage for Design Criteria Develop Methodology for the Analysis of Complex Mechanical Systems 				12/76 12/78 12/76 12/77 8/77	
26A <u>ACCOMPLISHMENTS FOR FY-76</u>					
<ul style="list-style-type: none"> L-1011 & DC-8 Tests completed 					
27. Source of Requirement FS-100-73-133, GS-200-1-73 R&D Program Plan			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE IV 182-521			10A. PRIOR NUMBER/CODE NA		
11. TITLE: PROPULSION AIRWORTHINESS					
12. SCIENTIFIC OR TECH. AREA			13. START DATE Continuing	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:				
18. GOV'T LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: J. J. Shea, ARD-520 TEL: (202) 426-9416			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Engine Reliability					
24. TECHNICAL OBJECTIVE: To develop methods and equipments to improve propulsion systems reliability and safety.					
25. APPROACH: Data generated by analysis and tests to develop improved propulsion systems, conducted via NAFEC inhouse, SRDS/Industry contractual efforts and NASA support will form the technical base for proposed new and/or revised airworthiness and operational requirements. Specific areas of interest are improved turbine rotor blade containment, resistance to bird ingestion, anti-ice system design criteria and the study of higher temperature engines using the USAF engine nacelle fire test simulator.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT <ul style="list-style-type: none"> Turbine Rotor Blade Containment Study 9/77 Criteria for Improved Engine-Bird Ingestion Standards 4/77 Engine Anti-Icing Design Criteria Report 6/77 					
26A ACCOMPLISHMENTS FOR FY-76 <ul style="list-style-type: none"> Contracts awarded for containment, bird ingestion and engine anti-ice criteria. 					
27. Source of Requirement FAA-ED-18-1			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

IV 182-521

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME				1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram		
100. CURRENT NUMBER/CODE IV 182-530				101. PRIOR NUMBER/CODE NA			
11. TITLE: FLIGHT PERFORMANCE/OPERATION							
12. SCIENTIFIC OR TECH. AREA				13. START DATE Continuing	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE:		18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd St., S.W. Washington, DC 20591 RESP. INDV.: T. Kolankiewicz ARD-530 TEL: (202) 426-3290				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd St., S.W. Washington, DC 20591 RESP. INDV.: T. Kolankiewicz ARD-530 TEL: (202) 426-3290				20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA				22. COORDINATION NA			
23. KEYWORDS Transports, Airworthiness, Flying Qualities, Flight Simulation							
24. <u>TECHNICAL OBJECTIVE:</u> To develop aircraft-pilot and system performance flight characteristics criteria for new or improved airworthiness certification standards and associated operating limitations for all forms of transport aircraft. Explore greater utilization of simulation methods in the aircraft certification process.							
25. <u>APPROACH:</u> Analysis, ground-based and in-flight simulation and experimental flight testing of powered-lift and conventional transports. Examination of emerging technology such as active control systems. Obtain flight characteristics and operational data related to development of advanced design data and regulatory standards. NASA-Ames simulation facilities, NAFEC and contractual support will be utilized for accomplishment of this effort.							
26. <u>MILESTONES SCHEDULED FOR ACCOMPLISHMENT:</u>							
Complete Joint Canada/FAA Variable Stability Helicopter Flight Tests						11/76	
Use of Simulators in Aircraft Certification - Phase I Report						3/77	
Improved helicopter instrument display (IFR) - report						4/77	
Large aircraft structural loads criteria - report						9/77	
26A <u>ACCOMPLISHMENTS FY-76</u>							
Simulation complete on wake vortex encounters							
Simulator evaluation of FAA Sabreliner flight inspection airplane							
Wake Vortex Hazard Definition							
Testing started on PRFAX-H Control Display Program							
Powered-Lift STOL Certification developed for Approach Flight Path Control							
27. Source of Requirement FS-100-75-142 FAA-ED-18-1				28. Blank			
29. Blank				30. Precedence Blank			
				31. Relevant Project Code			

IV 182-530

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION	3. AGENCY ACCESSION	4. REPORTS IDENT. SYND.
5. DATE OF RESUME	6. KIND OF RESUME	7. SECURITY	8. REGARDING	9. RELEASE LIMITATION	10. LEVEL OF RESUME
7/1/76	D	U	NA	NL	Subprogram
11. CURRENT NUMBER/CODE		12. PRIOR NUMBER/CODE			
IV 184-520		NA			
13. TITLE:					
GENERAL AVIATION FLIGHT SAFETY					
14. SCIENTIFIC OR TECH. AREA			15. START DATE	16. CRIT. COMPL. DATE	17. FUNDING AGENCY
			Continuing	N/A	FAA
18. PROCURE. METHOD	19. CONTRACT/GRANT		20. PERFORMING ORGANIZATION		
NA	A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:		NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. GOV'T LAB/INST. LOCATION/ACTIVITY			22. COORDINATION		
NAME: FAA/SRDS ADDRESS: 2100 2nd St., S.W. Washington, D.C. 20591 RESP. INDIV.: Joseph W. Howell ARD-530 TEL: (202) 426-3290			NA		
23. KEYWORDS					
Aircraft Safety Stall/Spin, Stall Avoidance, Gust Analysis, Structural Loads					
24. <u>TECHNICAL OBJECTIVE:</u> Develop and apply advanced technology in aircraft design to general aviation to improve light, general aviation aerodynamic characteristics, performance, stability and control and structural design criteria to general aviation flight safety. Provide technology base for new or improved airworthiness and operational requirements. Determine characteristics of cockpit layouts contributing to pilot error.					
25. <u>APPROACH:</u> Perform analyses, ground-based and in-flight simulation operational flight testing of personal owner and business oriented general aviation airplanes. Obtain flight characteristics and operational data related to development of advanced design data and regulatory standards. Develop standards for cockpit control features. NAFEC and contract effort supports this activity.					
26. <u>MILESTONES SCHEDULED FOR ACCOMPLISHMENT</u>					
<ul style="list-style-type: none"> Evaluation of Rigid Airplane Gust Analyses - Report 12/76 Phase II Report - Cockpit Standardization 1/77 Final Report - Lightplane Longitudinal Control Criteria 12/76 Develop Small Aircraft Structural Loads Criteria - Report 9/77 					
26A. <u>ACCOMPLISHMENTS - FY-76</u>					
<ul style="list-style-type: none"> NASA Final Report - Airplane Gust Analysis Phase I Report - Cockpit Standardization Final Report - Lightplane Stall Avoidance Final Report - Stall Characteristics Analysis 					
27. Source of Requirement			28. Blank		
FS-100-65-73 ED-18-1			FS-100-73-131		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

IV 184-520

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE IV 184-521		10b. PRIOR NUMBER/CODE NA			
11. TITLE: GENERAL AVIATION CRASH SAFETY					
12. SCIENTIFIC OR TECH. AREA		13. START DATE Continuing	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Herbert C. Spicer, Jr., ARD-520 TEL: (202) 426-8416		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Aircraft Safety, Crash Survivability, Crashworthiness					
24. TECHNICAL OBJECTIVE: To develop a validated basis for standards leading to improved occupant survivability in aircraft accidents. To develop effective and practical means of packaging aircraft occupants during a crash to minimize injury, and to reduce the likelihood of a fire after a crash. Prepare recommendations to Flight Standards for new or improved certification requirements.					
25. APPROACH: The approach for the General Aviation Program is three-phased. Phase I includes technical studies and theoretical research leading to a scientific analytical basis for the development of design standards. Phase II involves full-scale crash tests to refine and validate Phase I basic data. Phase III applies the analytical techniques to general aviation aircraft designs to identify possible and practical crashworthiness improvements. Work will be accomplished through contracts and NAFEC tests.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT:					
<ul style="list-style-type: none"> • General Aviation Crash Survivability Criteria <ul style="list-style-type: none"> Phase I Aircraft Crash Simulation Studies completed 10/76 Phase II Full Scale Crash Validation Test Report 7/77 Phase III Application of Analytical Techniques - Criteria Report 8/78 • Validation Man/Seat/Restraint System Tests Complete - Report 12/76 • General Aviation Crash Resistant Fuel System Construction & Test-Rpt. 12/76 					
26A ACCOMPLISHMENTS FOR FY-76					
<ul style="list-style-type: none"> • Completed Man/Seat/Restraint Report & Users Manual • Contract Award for G. A. Crash Resistant Fuel System 					
27. Source of Requirement FAA-ED-18-1			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

IV-184-521

Forms 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE IV 184-530			10b. PRIOR NUMBER/CODE NA		
11. TITLE: GENERAL AVIATION PILOT COMPETENCE					
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE Continuing	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd St. S.W. Washington, D.C. 20591 RESP. INDV.: Frank Hudson ARD-530 TEL: (202) 426-3290			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS: Accident analysis, certification, simulators (Ground Trainers) currency, judgement, computers stalls.					
23. TECHNICAL OBJECTIVE: To develop data to support Flight Standards regulatory and advisory action as regards pilot certification training and currency requirements.					
24. APPROACH: Projects involving general aviation accident analysis; pilot judgement studies; and evaluation of experimental training and certification methods (simulators ground trainers), computer aided education, etc., will develop supporting data. Contractual activity will be required to supplement inhouse effort of this program.					
25. MILESTONES SCHEDULED FOR ACCOMPLISHMENT:					
1. Completion report - stall awareness training experimental syllabus				9/76	
2. Pilot Judgement Study Phase I Report				10/77	
3. Complete Improved Pilot Training Syllabus Report				2/79	
26. ADDITIONAL COMMENTS: FY-76					
Completion of specialized simulator (pilot ground trainer) evaluation for VFR/IFR training. Phase II report					
27. Reference FAA-ED-18-1			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

IV 184-530

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGARDING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE IV 185-561			10A. PRIOR NUMBER/CODE		
11. TITLE: EXPLOSIVE/SABOTAGE DETECTION					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE Continuing	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA c. TYPE: d. AGENCY:				
18. GOVT. LABORATORY/ACTIVITY NAME: FAA/SKDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: W. Richardson, Jr., ARD-510 J. R. Whittaker, ARD-510 TEL: 426-6794			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Civil Aviation Security					
24. TECHNICAL OBJECTIVE: Conceive, design, develop, test and evaluate new devices and ancillary equipment and assess existing devices directed towards the detection and prevention of weapons and explosives being introduced into the aircraft/airport environment.					
25. APPROACH: Expand and expedite those efforts already underway and to initiate new efforts in those areas indicated as promising by studies and laboratory tests.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT					
<ul style="list-style-type: none"> Vapor Detection Test Guidelines, Established-Report Existing Detectors Evaluated-Report Checked Baggage Prototype Explosive System Evaluated-Report Advanced Tech. Studies Initiated Decompression Screening System Delivered-Engineering model Feasibility of Pattern Logic Transfer Established -Report Feasibility of X-Ray Absorption Application to Explosive Detection Established-Report Feasibility of X-Ray Fluorescence Explosive Detection Established-Report Storage Locker Tests Complete-Report 					12/76 1/77 3/77 3/77 4/77 6/77 9/77 9/77 12/77
26A. ACCOMPLISHMENTS FOR FY-76					
<ul style="list-style-type: none"> Developed Personnel Explosive Vapor Detector Completed 1st Phase Explosive Locker Experimentation Complete Airport Evaluation of X-Ray Absorption Devise for Hand-Carried Luggage Complete 1st Phase of Operational Analysis of Security Devices 					
27. Source of Requirement FAA-ED-18-2			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		
			IV 185-561		

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

19 AVIATION MEDICINE
(Not included)

20 ENVIRONMENT

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS ICENT. JYMB. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE IV 201-521		10A. PRIOR NUMBER/CODE NA			
11. TITLE: AIRCRAFT PROPULSION SYSTEMS AIR POLLUTION					
12. SCIENTIFIC OR TECH. AREA N/A		13. START DATE Continuing	14. CRIT. COMPL. DATE N/AA	15. FUNDING AGENCY FAA	
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
19. RESP. INDIV.: William T. Westfield, ARD-550 TEL: 426-3314					
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Aircraft, Pollution, Powerplant, Measurement, Reduction					
24. TECHNICAL OBJECTIVE: To develop the means to measure, reduce, and control air pollution from aircraft powerplants and support systems in consonance with the responsibilities and authorities placed on the FAA by the Clean Air Amendments of 1970 (Public Law 91-604).					
25. APPROACH: With NAFEC test support, intergovernmental cooperative efforts, and contractual efforts with industry, conduct research and development aimed at improving the pollution characteristics of CTOL, RTOL, etc. powerplants and support systems while maintaining adequate safety characteristics. Analyze and apply these developments to improve airport air quality levels.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT:					
<ul style="list-style-type: none"> o Report-Turbine Engine Exhaust Emission Time-Degradation Factors Defined - 3/77 o Award Contract--Development of Time-Degradation Factors For Piston Engine Exhaust Emissions - 12/76 o Certification Test Procedures For Turbine Engine Emissions - 8/77 					
26A. ACCOMPLISHMENTS FY-76:					
<ul style="list-style-type: none"> o Piston engine baseline emission tests to define possible hazards were completed. o Air quality impact analysis of runway modification at Anchorage Alaska International Airport completed. o Air quality impact analysis of Concorde operations at JFK & Dulles Completed for Final Environmental Impact Analysis o Interim report on SO₂/SO₃ levels in turbine engine exhausts published. 					
27. Source of Requirement		FAA-ED-20-1 EQ-74-1 EQ-74-2		28. Blank	
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

IV 201-521

 Items 1 to 28 identical to
 DD Form 149A and
 NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750.1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE IV 202-551		10b. PRIOR NUMBER/CODE NA			
11. TITLE: SOURCE NOISE REDUCTION					
12. SCIENTIFIC OR TECH. AREA			13. START DATE Continuing	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA
16. PRECISE KEYWORD NA	17. CONTRACT/GRANT a. DATE: b. NUMBER: NA c. TYPE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 - 2nd Street, S.W. Washington, D.C. 20591			19. PERFORMING ORGANIZATION NAME: ADDRESS:		
RESP. INDIV.: Robert S. Zuckerman, ARD-550 TEL: 42-63314			INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Aircraft Noise, Jet Noise, Core Engine Noise, Sound Absorption Treatment					
24. TECHNICAL OBJECTIVE: Determination of Aircraft/engine performance and configuration variables that influence generation or propagation of noise, development of prediction techniques and establishment of guidelines for noise reduction.					
25. APPROACH: Analytical and experimental investigations of mechanisms of generation and suppression of engine noise sources and of installation effects of nacelle and airframe on noise propagation and reduction -- Contract support.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT:					
<ul style="list-style-type: none"> • PWA Combustor Noise Prediction Model (Low-Emissions Combustors) - 11/76 • GE Core Engine Component Noise Up-Date, Including Low-Emissions Combustors 11/76 • Jet Noise Suppression Design Guide - 11/77 • Airframe Noise Prediction and Reduction Model - 5/77 • JT8D Mixer Study Report - 11/77 					
26A ACCOMPLISHMENTS FY-76					
<ul style="list-style-type: none"> • Jet Noise Suppression, Reports for Task I, & IV Published • Configuration Effects Report Published • STOL Configuration, Jet/Flap Investigation Report Published • Business/Executive Jet, Evaluation of Noise Abatement Alternatives Report Published • V/STOL Noise Predictions for YC-14, YC-15 and Optimized STOL Craft Completed • B-727 Flyover Jet Noise Analysis for Suppressed & Unsuppressed Nozzle Published • V/STOL Rotary Propulsors Prediction Model Completed, Report Published 					
27. Source of Requirement FAA-ED-20-2			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

IV 202-551

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE IV 202-552			10b. PRIOR NUMBER/CODE NA		
11. TITLE: OPERATIONAL NOISE REDUCTION					
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE Continuing	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY FAA
16. PRECISE. REYNOS NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 - 2nd Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Robert J. Koenig, ARD-550 TEL: 42-63314			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS Noise Abatement Operations, Atmospheric Attenuation, Noise Measurements					
24. TECHNICAL OBJECTIVE: Determination of significant aircraft performance characteristics that influence noise exposure on the ground, development of prediction techniques, evaluation of the effects of the atmosphere on sound propagation, and development of noise measurement techniques.					
25. APPROACH: Theoretical and experimental investigations of effects of aircraft operating procedures, meteorological conditions, and ground terrain on transmission of sound. Analysis, design, and testing of noise measurement systems. In-house and contractual effort supports this activity.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT:					
<ul style="list-style-type: none"> General Aviation and Helicopter Aircraft Certification Studies, Tip Corrections and Weather Restriction Tests Complete 					
26A ACCOMPLISHMENTS FY-76					
<ul style="list-style-type: none"> Report, Effect of Temperature and Humidity On Aircraft Noise Propagation Report, Aircraft Noise Measurement and Monitoring Systems Reports, Certification Research 					
27. Source of Requirement FAA-ED-20-2			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

IV 202-552

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. AND RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE IV 202-553		11. PRIOR NUMBER/CODE NA			
12. TITLE: NOISE EVALUATION AND RESPONSE					
13. SCIENTIFIC OR TECH. AREA N/A		14. START DATE Continuing	15. CRIT. COMPL. DATE N/A	16. FUNDING AGENCY FAA 1	
17. PERSONNEL: RESEARCHER NA	18. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. AGENCY:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 - 2nd Street, S.W. Washington, D.C. 20591		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Aircraft and Community Noise, Psychoacoustic Procedures, Noise Certification, Calculation, Aircraft Flyover Noise Signals, Noise Compatible Land Use Planning					
24. TECHNICAL OBJECTIVE: To obtain certification and design criteria for aircraft and airports. Determination of significant variables that influence response to noise, development of psychoacoustic measures procedures and guidelines for control of noise exposure within the requirements of Public Law 90-411.					
25. APPROACH: Conduct Psychoacoustic Tests in laboratories and family homes regarding the effects of noise on man and the development of acceptable procedures and yardsticks for evaluating aircraft noise and community noise exposure.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT					
<ul style="list-style-type: none"> • Psychoacoustic tests of alternative operational procedures - report 9/77 • Psychoacoustic tests regarding significant changes in level and number of operations for airport planning - report 9/77 					
26A. ACCOMPLISHMENTS FY-76					
Review of Studies Investigation Human Response to Commercial Aircraft Noise Report No. FAA-RD-75-182 published.					
Establishing Noise Criteria for Residential Living in Areas Surround Commercial Aviation Airports, Report No. FAA-RD-75-211 published.					
Noise Certification and Implementation Consideration for V/STOL Aircraft Report No. FAA RD-75-190 published.					
27. Source of Requirement PL-90-411/ FAA-ED-20-2			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

IV 202-553

Trans 1 to 26 identical to
DD Form 149A 6-66
NASA Form 1123

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RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D ₁	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE IV 202-554		11. PRIOR NUMBER/CODE NA			
12. TITLE SONIC BOOM RESEARCH					
13. SCIENTIFIC OR TECH. AREA N/A		14. STAFF SIZE Continuing	15. CRIT. COMPL. DATE N/A	16. FUNDING AGENCY FAA	
17. PERSONNEL METHOD NA	18. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. ACCOUNT:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 - 2nd Street, S.W. Washington, D. C. 20591 RESP. INDV.: Thomas H. Higgins, ARD-550 TEL: 42-63314		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Sonic Boom Research, Certification Criteria, Design Criteria					
24. TECHNICAL OBJECTIVE: To obtain Certification Criteria required by Public Law 90-411, aircraft design criteria and operational criteria regarding sonic boom environmental effects.					
25. APPROACH: This is an in-house and contract effort coordinated by Interagency agreements with NASA, NOAA, DOI, and U.S. Air Force to determine the effects of sonic boom on man and his environment. Support is provided by NAPEC in the processing of TDR-1 Sonic Boom recorder data and by the Aeronautical Center in the maintenance of TDR-1 recorders.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT					
<ul style="list-style-type: none"> • F-111 Supersonic Boomless Flight Demonstrations - 12/76 • System Definition-Transcontinental Boomless Flight System - 12/76 • NOAA Report on Atmospheric Effects On Sonic Boom Lateral Propagation - 6/77 					
26A ACCOMPLISHMENTS FY-76					
<ul style="list-style-type: none"> • Completed Sonic Boom Recorder Tests. • In-House FAA Report: Recorded Seismic Compression Waves Preceding Sonic Booms • Obtained USAF Support To Furnish F-111 Boomless Flight Demonstration Aircraft. 					
27. Source of Requirement PL-90-411 ED-20-2		28. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

IV 202-554

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. YMB. RD 1750-1
4. DATE OF RESUME July 1, 1976	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE IV 204-551		10A. PRIOR NUMBER/CODE NA			
11. TITLE: ENGINE EMISSIONS					
12. SCIENTIFIC OR TECH. AREA			13. START DATE Continuing	14. CRIT. COMPL. DATE NA	15. FUNDING AGENCY FAA
16. PROCURE. BY/NO	17. CONTRACT/GRANT	18. DATE			
NA	a. NUMBER: NA	b. TYPE: c. AMOUNT:			
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 - Second St. S.W. Washington, D.C. 20591		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
RESP. INDV.: Joseph Gwiazdowski, ARD-550 TEL: 426-4922					
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Climatic Impact, Stratosphere, Troposphere, Engine Emissions, Monitoring, Fuel Sulfur					
24. TECHNICAL OBJECTIVE: To develop accurate, current engine exhaust emission and fuel sulfur loading characteristics for the world fleet of aircraft that operate in the stratospheric regions. This compilation will be used as input data to a global modeling effort to predict aircraft impact on the stratosphere.					
25. APPROACH: Where available, actual emission factors will be compiled from data taken by various government and industry sources. If data at altitude is not available, sea level information will be corrected to the proper conditions using appropriate relationships. Fuel sulfur content will be monitored and coupled with the time spent in the stratosphere, calculations of the amount of sulfur oxides will be maintained.					
26. MILESTONES SCHEDULED FOR ACCOMPLISHMENT:					
o Initial up-date of existing engine emission factors completed and reported - 9/76					
27. ACCOMPLISHMENT FY-76:					
o Initial assessment of world fleet emission burden in the stratosphere issued.					
27. Source of Requirement - Directed Action S-1			28. Blank		
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

IV 204-551

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

21 SUPPORT

RESEARCH AND TECHNOLOGY R		ME	NA	GOVT ACCESSION	NA	AGENCY ACCESSION	NA	REPORTS IDENT. YMB.	RD 1750-1
1. DATE OF RESUME	2. KIND OF RESUME	3. SECURITY	4. REGRADING	5. RELEASE LIMITATION	6. LEVEL OF RESUME				
7/1/76	D	U	NA	NL	Subprogram				
10. CURRENT NUMBER/CODE			11. PRIOR NUMBER/CODE						
I-213-620			213-620, 213-621, 213-622						
12. TITLE:									
SPECTRUM APPLICATIONS ENGINEERING									
13. IDENTIFYING OR TECH. AREA				14. START DATE		15. CRIT. COMPL. DATE		16. FUNDING AGENCY	
Air Facilities 001500 Computers 004200 Wave Propagation 017000 Test Equipment 008700									
17. PROJECT. BYTES		18. CONTR. PT/GRANT		19. DATE					
NA		NA							
20. GOVT LAB/INSTALLATION/ACTIVITY		21. PERFORMING ORGANIZATION		22. COORDINATION					
NAME: FAA		NAME:		NA					
ADDRESS: 2100 Second St., S. W. Washington, D. C. 20590		ADDRESS:							
RESP. INDV.: Raymond Johnson, ARD-61		INVESTIGATORS		TYPE:					
TEL: 202-426-3628		PRINCIPAL							
23. TECHNOLOGY UTILIZATION		24. COORDINATION							
NA		NA							
25. KEYWORDS									
RF Propagation, spectrum, OTP, IRAC, ICAO, ITU, CCIR									
26. <u>Technical Objective:</u> To continue the development of technical expertise in the highly specialized field of RF propagation; To develop the sophisticated test equipment and measurement procedures needed to more accurately certify facility operation and resolve interference situations in a more timely manner; To obtain/retain spectrum support for new/existing FAA systems in the OTP/IRAC and ICAO/ITU/CCIR forums where we must compete with all other users for spectrum support.									
27. <u>Approach:</u> Propagation computer models will be developed/refined for solving a wide variety of day-to-day spectrum management problems (field and Headquarters). Propagation studies will be conducted as required in support of WARC '79 preparation. A self-contained test van and associated test procedures will be developed for use by Regional and Headquarters frequency management personnel. National and International spectrum management forums will be participated in to the extent necessary to satisfy the spectrum needs of the agency.									
26. <u>Milestones Scheduled for Accomplishment:</u>									
SCAM Vehicle delivered per specification FAA-ER-620-001								10/76	
Special Purpose RML antenna alignment receiver delivered								12/76	
Report on RML swamp path study issued								12/76	
Publication of report on propagation model refinements								1/77	
Development of Phase I remote terminal capability with ECAC								2/77	
26a. <u>FY-76 Accomplishments:</u>									
Published Report FAA-RD-75-136 entitled "Effects of High Latitude Geophysical Events on VHF Aeronautical Navigation Aids."									
Published Report FAA-RD-75-198 entitled "Effects of High Latitude Geophysical Events in the Aeronautical Radio Frequency Bands."									
27. Source of Requirement Administrator (functional responsibility)				28. Blank					
29. Blank				30. Precedence Blank					
				31. Relevant Project Code					

I-213- 620

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY R. AE		NA	1 GOVT ACCESSION NA	ENCY ACCESSION NA	REPORTS IDENT. YMS. RD 1750.1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGARDING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I-213- 621			10b. PRIOR NUMBER/CODE		
11. TITLE: RADAR/BEACON SPECTRUM PLANNING					
12. SCIENTIFIC OR TECH. AREA Radar Detection 013700 Air Facilities 001500 Computer 004200			13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AMOUNT:				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second St., S. W. Washington, D. C. 20590 RESP. INDV.: Joseph L. Pierzga, ARD-62 TEL: 202-426-3628			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS Electromagnetic Compatibility, radar, ATCRBS, DABS, spectrum					
24. Technical Objective: To conduct studies and make recommendations for improving the overall electromagnetic compatibility (EMC) of existing and new radar, and radar beacon (ATCRBS and DABS) systems. To upgrade the existing capability for predicting ATCRBS performance in a given environment and validate the resultant model. To develop a DABS performance prediction model.					
25. Approach: An EMC analysis will be performed to support the introduction of the ASDE-3 radar into the 15.7 to 16.2 GHz band. Band studies will be conducted as required to insure continued spectrum support for the agency's ASR and ARSR operations (existing and planned). Specific problems at terminal and enroute ATCRBS sites will be investigated and proposed solutions will be developed utilizing the latest performance prediction models. An EMC study will be performed to determine the impact of DABS on TACAN/DME.					
26. Milestones Scheduled for Accomplishment:					
ARSR EMC Analysis Report released				11/76	
ASDE-3 EMC Analysis Report released				11/76	
Development of DABS Performance Prediction Model completed				2/77	
Report on DABS impact on TACAN/DME issued				2/77	
Report on ATCRBS/BCAS EMC Analysis issued				2/77	
ATCRBS Problem Site Analysis completed				9/77	
26a. FY-76 Accomplishments:					
Report FAA-RD-75-109 entitled "Interference Potential of the Discrete Address Beacon System (DABS) Provisional Signal Formats on X and Y Mode TACAN Equipment" published					
ATCRBS Airborne Antenna Model developed					
27. Source of Requirement Administrator (functional responsibility)			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I-213- 621

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY NAME		NA	1. GOVT ACCESSION NA	2. AGENCY ACCESSION NA	3. REPORTS IDENT. SYMB. RD 1750-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE I-213-1622		11. PRIOR NUMBER/CODE			
12. TITLE: COMMUNICATIONS/NAVIGATION SPECTRUM PLANNING					
13. IDENTIFYING OR TECH. AREA Air Facilities 001500 Computers 004200 Navigation & Guidance 010800 Communications 003900			14. START DATE	15. CRIT. COMPL. DATE	16. FUNDING AGENCY
17. PRECEDENCE NA	18. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. DATE: D. AMOUNT:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second St., S. W. Washington, D. C. 20590 RESP. INDV.: Joseph L. Pierzga TEL.: 202-426-3628			20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL.: TYPE:		
21. TECHNOLOGY UTILIZATION NA			22. COORDINATION NA		
23. KEYWORDS RNAV, Communication, Navigation, VOR, TACAN, DME					
24. <u>Technical Objectives:</u> To develop a frequency assignment/station selection model for RNAV routes. To perform computer analyses/studies to support the continued implementation of 25 kHz VHF air/ground frequency assignments. To develop an implementation plan for 25 kHz UHF air/ground frequency assignments. To update/refine frequency assignment criteria for both communications and navigation facilities and incorporate same in appropriate Handbook revisions or replacements.					
25. <u>Approach:</u> A computer model will be developed which takes into consideration existing frequency protected VOR/TACAN/DME service volumes in evaluating proposed RNAV way points. An existing computer model at ECAC will be exercised, as required, in providing "real world" frequency assignment and frequency change guidance to AAF-30 and Regional Frequency Management Offices. A new model will be developed to select UHF assignments in a manner similar to the existing VHF model. Existing propagation prediction models will be exercised considering new hardware characteristics, to provide the basis for refined NAV/COMM frequency assignment criteria.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
Development of UHF Frequency Assignment Model completed				12/76	
Revised Navigation Frequency Management Handbook Issued				6/77	
Issue Final Report on UHF Implementation Plan				6/77	
26a. <u>FY-76 Accomplishments:</u>					
Completion of NAFEC Testing to Identify ILS Antenna Patterns Resulting in Draft Data Report Completed Development of Phase I 25 kHz VHF air/ground communications Plan					
27. Source of Requirement Administrator (functional requirement)			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code		

I-213-622

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYMB. RD 1730-1
4. DATE OF RESUME 7/1/76	5. KIND OF RESUME D	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 215-307			10b. PRIOR NUMBER/CODE 215-607		
11. TITLE: RELIABILITY SUPPORT ACTIVITIES					
12. SCIENTIFIC OR TECH. AREA N/A			13. START DATE N/A	14. CRIT. COMPL. DATE N/A	15. FUNDING AGENCY N/A 1
16. PROCURE. METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. DATE: d. AGENCY:		NA		
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 Second Street, SW. Washington, D.C. 20590 RESP. INDV.: C. J. Andrascio, ARD-350 TEL: 202-426-3585			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS: Reliability, Maintainability, Electromagnetic Protection, Electromagnetic Compatibility, Grounding, Lightning Protection					
24. <u>Technical Objective:</u> Development of basic reliability, maintainability, EMC, EMP, Lightning and Grounding standards for FAA NAS System. Establish guidelines and procedures for evaluation of reliability, maintainability, electromagnetic compatibility, electromagnetic protection, lightning protection and grounding. Necessary engineering support to R&D and AAF will be provided.					
25. <u>Approach:</u> By in-house and contract support, establish guidelines for design analysis and evaluation, generate handbooks and expand technology as applicable toward complete functional reliability, maintainability, EMC, EMP, lightning protection and grounding for FAA equipment and systems.					
26. <u>Milestones Scheduled for Accomplishment</u>					
.Engineering Support to ARD and AAF - continuing 1/77					
.Vacuum tube study 7/76					
.VOR Cost vs. benefit tube study 2/77					
.Power Conditioning Systems Criteria					
26a. <u>Accomplishment for FY-1976</u>					
.Lightning and transient protection systems for RCAG, ASR-7, CAT III ILS					
.EMC Handbook and Specification					
.Grounding Handbook					
27. Source of Requirement SM 5-69-28/AF-75-15A 9550: AF-76-14			28. Blank		
29. Blank			30. Precedence Blank		
			31. Relevant Project Code -1		
			I215-307		

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY PROJECT		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION IU	4. REPORTS IDENT. SYMB. RD 1750.1
5. DATE OF RESUME 7/1/76	6. KIND OF RESUME D	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram
11. CURRENT NUMBER/CODE I-215-620		12. PRIOR NUMBER/CODE			
13. TITLE: ELECTROMAGNETIC RADIATION MEASUREMENT					
14. IDENTIFYING OR TECH. AREA Air Facilities 001500 Test Equipment 008700 Wave Propagation 017000		15. START DATE	16. CRIT. COMPL. DATE	17. FUNDING AGENCY	
18. PROCURE. METHOD NA	19. CONTRACT/GRANT a. NUMBER: NA b. TYPE:	20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second St., S. W. Washington, D. C. 20590 RESP. INDIV.: Raymond Johnson, ARD-61 TEL: 202-426-3628		22. COORDINATION NA			
23. TECHNOLOGY UTILIZATION NA					
24. NETWORKS ERMAC, OTP, Electromagnetic, biological					
25. Technical Objective: To perform power density surveys in and around FAA facilities, airport environments and the interior of aircraft in support of OTP's Electromagnetic Radiation Management Advisory Council (ERMAC). ERMAC's goal is the assessment of biological and non-biological hazards of non-ionizing electromagnetic radiation.					
26. Approach: National Bureau of Standards is performing the field measurements with emphasis on valid techniques and instrumentation for accurate power density surveys. This is a contract effort.					
27. Milestones Scheduled for Accomplishment: Delivery of Phase III (Final) EM Field Intensity Report 1/77					
28a. FY-76 Accomplishments: Phase I & II EM Field Intensity Reports received					
29. Source of Requirement Administrator (functional responsibility)		30. Blank			
29. Blank		30. Precedence Blank			
		31. Relevant Project Code			

I-215-620

Items 1 to 26 identical to
DD Form 149A and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYM. RD 1753-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 216-101		10b. PRIOR NUMBER/CODE None			
11. TITLE: ATCS Selection and Performance Measurement					
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE 10/76	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA	
16. PROCURE. METHOD NA	17. CONTRACT/GUANT a. NUMBER: NA b. TYPE: c. DATE: d. ACCOUNT:				
19. GOVT LAW/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd Street, S.W. Washington, D.C. 20591 RESP. INDV.: George A. Scott, ARD-150 TEL: (202) 426-9327		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Air Traffic Control, Personnel Measurements, Performance Tests					
24. <u>Technical Objective:</u> Develop and validate a measurement system that will objectively rate the radar control performance of a developmental or journeyman level ATCS.					
25. <u>Approach:</u> SRDS in conjunction with NAFEC will develop, test and validate techniques, hardware and software necessary to achieve the technical objectives. End products will consist of reports, specifications and support for Academy/field implementation.					
26. <u>Milestones Scheduled for Accomplishment:</u>					
Commence CPM Field Validation 3/77					
CPM Data Bank Completed 7/77					
CPM Field Validations Completed 8/77					
Academy Adaptation Specification Completed 8/77					
Field Validation Final Report Completed 8/77					
26.A <u>Accomplishments for FY-76:</u>					
CPM En Route Experiments Completed 8/76					
27. Source of Requirement FAA-ED-21-3		28.			
29.		30. Precedence			
		31. Relevant Project Code			

I 216-101

Forms 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYM. RD 1750-1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10. CURRENT NUMBER/CODE I 216-102		10A. PRIOR NUMBER/CODE None			
11. TITLE: FAA Academy ATCS Training					
12. SCIENTIFIC OR TECH. AREA N/A		13. START DATE 10/76	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA	
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA B. TYPE: C. AMOUNT:				
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd Street, S.W. Washington, D.C. 20591 RESP. INDV.: George A. Scott, ARD-150 TEL: (202) 426-9327		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL ASSOCIATE: TEL: TYPE:			
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA			
23. KEYWORDS Air Traffic Control, Simulation, Training, Academy, Tower					
24. <u>Technical Objective:</u> Support the agencies effort to acquire realistic ATC training simulators for the FAA Academy. Two types of simulators to be considered (1) En Route and ARTS III radar environment (2) control tower environment.					
25. <u>Approach:</u> SRDS in conjunction with the Office of Personnel and Training, Air Traffic Service, FAA Academy and NAFEC will conduct engineering studies, develop the functional specifications for procurement of the Academy simulators, and provide technical expertise during the acquisition and implementation of the system.					
26. <u>Milestones Scheduled for Accomplishment:</u> Tower Simulator Technical Feasibility Report 4/77 Award Contract for Radar Training Facility 4/77					
26.A <u>Accomplishments for FY-76</u> Functional Specifications for ATC Radar Simulator 4/76 RFP Issued ATC Radar Simulator 8/76					
27. Source of Requirement FAA-ED-21-3		28.			
29.		30. Precedence			
		31. Relevant Project Code			

I 216-102

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. CODE RD 1750-1												
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram												
100. CURRENT NUMBER/CODE I 216-103		10A. PRIOR NUMBER/CODE None															
11. TITLE: ATC Facility ATCS Training																	
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE 10/76	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA													
16. PROCEDURE METHOD NA	17. CONTRACT/GRANT a. NUMBER: NA b. TYPE: c. ACCOUNT:																
19. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 2nd Street, S.W. Washington, D.C. 20591 RESP. INDV.: George A. Scott, ARD-150 TEL: (202) 426-9327		20. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:															
21. TECHNOLOGY UTILIZATION NA		22. COORDINATION NA															
23. KEYWORDS Air Traffic Control, Simulation, ATC Facility Training																	
24. <u>Technical Objective:</u> Support the upgrading of training simulation capabilities at ATC facilities. This includes: investigation of simulator pilot consoles; enhancement of En Route (DYNSSIM) and ARTS III (ETG) simulator programs; development of training capability for ARTS II facilities.																	
25. <u>Approach:</u> SRDS in conjunction with NAFEC will investigate, develop, test and validate techniques, hardware and software necessary to achieve the technical objectives. End products will consist of reports, specifications and support for field implementation.																	
26... <u>Milestones Scheduled for Accomplishment:</u>																	
<table border="0"> <tr> <td>.Pilot Console Engineering Model Development</td> <td>11/76</td> </tr> <tr> <td>.NAFEC Pilot Console Evaluation Complete</td> <td>1/77</td> </tr> <tr> <td>.Facility Training Software Enhancement Studies</td> <td>1/77</td> </tr> <tr> <td>.Pilot Console Technical Data Package/Specifications</td> <td>3/77</td> </tr> <tr> <td>.ARTS II Training Cost/Benefit Analysis</td> <td>3/77</td> </tr> <tr> <td>.ARTS II Training Functional Specification</td> <td>9/77</td> </tr> </table>						.Pilot Console Engineering Model Development	11/76	.NAFEC Pilot Console Evaluation Complete	1/77	.Facility Training Software Enhancement Studies	1/77	.Pilot Console Technical Data Package/Specifications	3/77	.ARTS II Training Cost/Benefit Analysis	3/77	.ARTS II Training Functional Specification	9/77
.Pilot Console Engineering Model Development	11/76																
.NAFEC Pilot Console Evaluation Complete	1/77																
.Facility Training Software Enhancement Studies	1/77																
.Pilot Console Technical Data Package/Specifications	3/77																
.ARTS II Training Cost/Benefit Analysis	3/77																
.ARTS II Training Functional Specification	9/77																
26.A <u>Accomplishments for FY-76</u>																	
<table border="0"> <tr> <td>.Feasibility and Cost Analysis</td> <td>9/76</td> </tr> </table>						.Feasibility and Cost Analysis	9/76										
.Feasibility and Cost Analysis	9/76																
27. Source of Requirement FAA-ED-21-3		28.															
29.		30. Precedence															
		31. Relevant Project Code															

I 216-103

Items 1 to 26 identical to
DD Form 149R and
NASA Form 1122.

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RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORTS IDENT. SYM. RD 1713.1
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME A	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram
10a. CURRENT NUMBER/CODE I 216-104			10b. PRIOR NUMBER/CODE None		
11. TITLE: Upgraded ATC System Training					
12. SCIENTIFIC OR TECH. AREA NA			13. START DATE 10/76	14. CRIT. COMPL. DATE	15. FUNDING AGENCY FAA
16. PROCURE. METHOD NA	17. CONTRACT/GRANT A. DATE B. NUMBER: NA C. TYPE D. ACCOUNT				
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd Street, S.W. Washington, D.C. 20591 RESP. INDV.: George A. Scott, ARD-150 TEL: (202) 426-9327			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATORS PRINCIPAL: ASSOCIATE: TEL: TYPE:		
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA		
22. KEYWORDS Air Traffic Control, Simulation, Training					
23. <u>Technical Objective:</u> Provide engineering analysis for identification and specification of long-term En Route (DYNSIM) and ARTS III (ETG) facility training.					
25. <u>Approach:</u> Recognizing the deficiencies of the DYNSIM and the ETG and the increased processing demands placed on the En Route and ARTS III automation systems SRDS and NAFEC will develop, test and validate techniques, hardware and software for providing a more efficient training system. End products will consist of reports, specifications and support for field implementation.					
26... <u>Milestones Scheduled for Accomplishment:</u>					
.Analysis and Operational Requirement 6/77					
.Evaluation of ETG/DYNSIM Adequacy 8/77					
.Recommendations for Upgrading Facility Simulation Capabilities 12/77					
26.A <u>Accomplishments for FY-76</u>					
None					
27. Source of Requirement FAA-ED-21-3			28.		
29.		30. Precedence			
		31. Relevant Project Code			

I 216-104

Items 1 to 26 identical to
DD Form 1498 and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	2. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	4. REPORTS SEC. 1 RD 1710-1						
5. DATE OF RESUME 10/1/76	6. KIND OF RESUME A	7. SECURITY U	8. REGRADING NA	9. RELEASE LIMITATION NL	10. LEVEL OF RESUME Subprogram						
11. CURRENT NUMBER/CODE I 216-105		12. PRIOR NUMBER/CODE None									
13. TITLE: Productivity in Advance ATC Automation Packages											
14. SCIENTIFIC OR TECH. AREA NA		15. START DATE 10/76	16. CRIT. COMPL. DATE	17. FUNDING AGENCY FAA							
18. PROCURE. METHOD NA	19. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AMOUNT:										
20. GOVT LAW/INSTALLATION/ACTIVITY NAME: FAA/SRDS ADDRESS: 2100 2nd Street, S.W. Washington, D.C. 20591 RESP. INDV.: George A. Scott, ARD-150 TEL: (202) 426-9327		21. PERFORMING ORGANIZATION NAME: DOT/TSC ADDRESS: Kendall Square Cambridge Mass. 02142 INVESTIGATOR: Robert Wiseman PRINCIPAL: 8-837-2014 ASSOCIATE: TEL: TYPE:									
22. TECHNOLOGY UTILIZATION NA		23. COORDINATION NA									
24. KEYWORDS Air Traffic Control, Productivity, Personnel & System Performance and Measurements											
25. <u>Technical Objective:</u> Develop and validate ATC controller productivity benefits as they apply to selected ATC En Route and ARTS III automation enhancement packages. At least six of the enhancement packages that intend to increase productivity will be evaluated with a technique that includes effects of safety, capacity and sustained service.											
26. <u>Approach:</u> TSC shall develop a fast-time simulation to serve as a predictive tool in assessing productivity gains due to NAS En Route and ARTS III enhancement packages. Correlate the measures of productivity used in simulation studies to observations of ATC controller work pace in real-time simulations completed at NAFEC and in actual operations in the field.											
27. <u>Milestones Scheduled for Accomplishment:</u>											
<table border="0"> <tr> <td>.Award Fast Time Simulation Software Contract</td> <td>10/76</td> </tr> <tr> <td>.Validate Accuracy of Model at Terminal Sites</td> <td>7/77</td> </tr> <tr> <td>.Develop Automatic Processing of Field Data</td> <td>9/77</td> </tr> </table>						.Award Fast Time Simulation Software Contract	10/76	.Validate Accuracy of Model at Terminal Sites	7/77	.Develop Automatic Processing of Field Data	9/77
.Award Fast Time Simulation Software Contract	10/76										
.Validate Accuracy of Model at Terminal Sites	7/77										
.Develop Automatic Processing of Field Data	9/77										
28. <u>Accomplishments for FY-76:</u>											
<table border="0"> <tr> <td>.Complete Development of Fast-Time Simulation</td> <td>7/76</td> </tr> <tr> <td>.Deliver Fast-Time En Route Model to SRDS</td> <td>9/76</td> </tr> </table>						.Complete Development of Fast-Time Simulation	7/76	.Deliver Fast-Time En Route Model to SRDS	9/76		
.Complete Development of Fast-Time Simulation	7/76										
.Deliver Fast-Time En Route Model to SRDS	9/76										
29. Source of Requirement OST Review of UG3rd		30. Precedence									
		31. Relevant Project Code									

I 216-105

Form I to 28 identical to
DD Form 145B and
NASA Form 1122.

RESEARCH AND TECHNOLOGY RESUME		1. NA	4. GOVT ACCESSION NA	3. AGENCY ACCESSION NA	REPORT NO. 1 RD 1715.1						
4. DATE OF RESUME 10/1/76	5. KIND OF RESUME	6. SECURITY U	7. REGRADING NA	8. RELEASE LIMITATION NL	9. LEVEL OF RESUME Subprogram						
10A. CURRENT NUMBER/CODE I 217-150		10B. PRIOR NUMBER/CODE 112-150									
11. TITLE: National Flight Data Center - Instrument Approach Procedure Automation											
12. SCIENTIFIC OR TECH. AREA NA		13. START DATE 10/76		14. CRIT. COMPL. DATE	15. FUNDING AGENCY						
16. PROCEDURE, METHOD NA	17. CONTRACT/GRANT A. NUMBER: NA C. TYPE: D. AMOUNT:										
18. GOVT LAB/INSTALLATION/ACTIVITY NAME: FAA ADDRESS: 2100 Second Street, S.W. Washington, D.C. 20591 RESP. INDIV.: Herbert A. Wachsman, ARD-150 TEL: (202) 426-9327			19. PERFORMING ORGANIZATION NAME: ADDRESS: INVESTIGATOR: PRINCIPAL: ASSOCIATE: TEL: TYPE:								
20. TECHNOLOGY UTILIZATION NA			21. COORDINATION NA								
22. KEYWORDS Instrument Approach Procedure, Automated Validation, Data Management System, National Flight Data Center											
23. <u>Technical Objective:</u> Develop and validate a subsystem to the National Flight Data Center data system to provide automated assistance in the: <ol style="list-style-type: none"> 1. Development and revision of instrument approach procedures. 2. Verification and processing of that data in the field offices of the Flight Standards Service. 3. Validation of that data in the National Flight Data Center of the Air Traffic Service, and interface with the aeronautical chart production facilities of the National Oceanic Survey. 											
25. <u>Approach:</u> Contract services to design, develop, and demonstrate the operational subsystem. In-house FAA support to provide the hardware and computer system required for the test and evaluation. Interagency support as follows: <ol style="list-style-type: none"> 1. National Ocean Survey to assist in the definition and design of the required interface. 2. United States Air Force to assist in the software production and documentation of the criteria for Terminal Instrument Procedures (TERPS). 											
26. <u>Milestones Scheduled for Accomplishment:</u> <table border="0" style="width: 100%;"> <tr> <td>Subsystem Design and Specification</td> <td style="text-align: right;">1/77</td> </tr> <tr> <td>Operational Demonstration for AAT/AFS</td> <td style="text-align: right;">10/77</td> </tr> </table>						Subsystem Design and Specification	1/77	Operational Demonstration for AAT/AFS	10/77		
Subsystem Design and Specification	1/77										
Operational Demonstration for AAT/AFS	10/77										
26.A <u>Accomplishments for FY-76:</u> <table border="0" style="width: 100%;"> <tr> <td>Contract Award to TRW Systems Group</td> <td style="text-align: right;">10/75</td> </tr> <tr> <td>Memorandum of Agreement with USAF</td> <td style="text-align: right;">12/75</td> </tr> <tr> <td>Completion of System Studies</td> <td style="text-align: right;">8/76</td> </tr> </table>						Contract Award to TRW Systems Group	10/75	Memorandum of Agreement with USAF	12/75	Completion of System Studies	8/76
Contract Award to TRW Systems Group	10/75										
Memorandum of Agreement with USAF	12/75										
Completion of System Studies	8/76										
27. Source of Requirement FAA-ED-11-1			28.								
29.		30. Precedence									
		31. Relevant Project Code									